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A Brief to the Committee on University Affairs

UNIVERSITY OF WATERLOO

BRIEF TO THE COMMITTEE ON UNIVERSITY AFFAIRS

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UNIVERSITY OF WATERLOO

BRIEF TO THE COMMITTEE ON UNIVERSITY AFFAIRS

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1. REVIEW OF CURRENT PROGRAMMES

- (a) Description of efforts by the University to co-ordinate programme offerings with other provincially-assisted universities:

GENERAL COMMENT:

The University of Waterloo has a wide variety of agreements with other provincially-assisted universities. Some of these are formal agreements, but the great majority are informal arrangements. The need for co-operation and co-ordination is more readily apparent at the graduate level, and it is there that the preponderance of these activities takes place.

The University of Waterloo and Waterloo Lutheran University signed an agreement on June 16th, 1970,* indicating their intention to strive for co-ordination of curricula, teaching and academic staff, admissions, registration, public events, new programmes, library holdings, and other matters that will aid in the development and maintenance of "a centre of undergraduate and graduate education" at Waterloo. Also, the University shared, with Waterloo Lutheran University, the initiation and operating fees to become joint members of Huntsman Marine Laboratory, St. Andrew's, N.B., which is supported by a consortium of eastern universities and The Fisheries Research Board. The laboratory is available for both graduate and undergraduate study.

* See APPENDIX A.

(a) Description of efforts by the University to co-ordinate

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At the academic departmental level increased co-ordination has recently been made possible through province-wide committees of departmental chairmen. This development was strongly encouraged through initiatives taken in 1969 by the Committee of University Presidents of Ontario. However, prior to that time, Science Faculty departmental chairmen, chairmen of German and Geography departments and directors of physical education schools, had developed their own provincial committees to satisfy co-ordination requirements in their respective disciplines. The extent of the co-ordination efforts naturally differs between departments. The range of questions considered has included admissions standards, graduate student enrolment limitations, library holdings, lecture series, secondary school preparation, overlap of summer school topics and, of course, subject/course coverage, both graduate and undergraduate. In addition, The School of Urban and Regional Planning is a member of the national Committee of Planning Programmes at Canadian Universities. This Committee's function is to act as a clearing house for information and to explore areas of collaboration.

(i) At the Undergraduate Level

Co-operation and co-ordination with other provincially-assisted universities at the undergraduate level is limited to primarily informal

arrangements. The Faculty of Engineering makes use of guest lecturers and courses at other institutions. Some undergraduate Engineering course co-ordination has taken place between Waterloo and Conestoga College. The Biology department has an active course exchange with Waterloo Lutheran University while Earth Sciences draws upon the larger staff available at both the University of Western Ontario and the University of Guelph. There is active liaison between our School of Optometry and the Health Sciences Centre at McMaster University; this includes possible establishment of a joint clinical programme. The Faculty of Mathematics has an agreement with Waterloo Lutheran University allowing our Mathematics students to take undergraduate courses in Auditing Theory, Taxation and Law for our Co-operative Chartered Accountancy Option.

In Arts, various departments have made arrangements to co-ordinate undergraduate activities with other universities. These include an agreement by the Department of Classics and Romance Languages with its counterparts at Waterloo Lutheran University and the University of Guelph. It is an attempt to co-ordinate library policy, honours undergraduate course work and possibly co-operative graduate programmes. Religious Studies has an "open enrolment" agreement with Waterloo Lutheran University for all undergraduate courses. Fine Arts has developed a co-ordinated film programme with Waterloo Lutheran University and Conestoga College. Discussions are taking

place on a programme to share facilities required for film-making courses. The Universities Art Association of Canada provides a formal though less direct, vehicle for co-ordination in art, particularly curricula comparison. Discussions with the University of Guelph resulted in a series of co-operatively-produced art exhibitions.

Almost all departments make use of the resources that are available in guest lecture series and through curriculum co-ordination at some level. However, there is an underlying reservation about co-operation at the undergraduate level that does not exist for graduate programmes. There is some feeling that attempts to co-ordinate at the undergraduate level are unnecessary. In most fields, there is a certain basic programme which each university must offer. In this context, it may very well be meaningless to talk about unnecessary duplication as each university, in order to offer a balanced programme, must present a similar core group of subjects. Another difficulty in assessing the possible benefits that might accrue with increased co-operation is that these endeavours suffer from rather high fixed costs for communication and travel. This is not considered as serious a roadblock at the graduate level because the numbers involved are not so significant, but at the undergraduate level it continues to be an inhibiting factor in those cases where additional co-ordination might possibly be beneficial.

(ii) At the Graduate Level

The O. C. G. S. supported scheme which allows a graduate student to take some graduate courses at other than his home university is recognized and used by the University of Waterloo. During the past two years, students from the Universities of Guelph and York have taken courses at the University of Waterloo, and University of Waterloo students have taken courses at Guelph and York. Under this arrangement, the student is authorized by the departmental chairman and Deans of Graduate Study at the home and host university to take such courses. He receives academic credit and the home university reimburses the host university at a standard rate per individual course. It is expected that the number of such transfer students will increase as the possibilities and benefits of this programme become better known amongst students and faculty.

In 1969 the University of Waterloo took the initiative together with the Universities of Guelph, McMaster, and Queen's in implementing co-operative arrangements involving activity at the graduate level in Latin American Studies (Ontario Co-operative Programme in Latin American and Caribbean Studies, O. C. P. L. A. C. S.). To this end a committee of representatives of these four universities has been meeting regularly during the past two years. The first benefit from such meetings is an exchange of information among students and faculty on such matters as course offerings, library holdings, and faculty at

participating universities. Lists have been prepared of the personnel qualified to offer courses connected with Latin America or the Caribbean, and of the courses, especially at the graduate level, which each institution was -- at least tentatively -- prepared to offer.

A complete bibliography of pertinent library material was prepared. Geography, History, Language and Literature, Economics, Political Science, Arts, Sociology, Anthropology and, to a certain extent the Natural Sciences, were included in the library survey. One of the assumptions of the co-operative effort is that every participating university must have an adequate undergraduate library in each of the disciplines involved. Beyond this, it is clearly impracticable for each of the four schools to build up post-graduate strength in all of the disciplines; accordingly, a good deal of time was devoted to the question of who should specialize in which discipline. The problem of assigning areas of responsibility in library acquisitions to avoid duplication of material has not yet been firmly settled.

In 1969-70, four full sessions of O. C. P. L. A. C. S., plus numerous executive meetings, were held. No definite commitments have been received from students, as yet, but a brochure has been issued and there is confidence that 1971-72 will see the arrangements fully operative.

The Faculty of Engineering has developed a co-ordination programme as part of its attempt to assist the orderly development of Engineering education facilities in this Province ,

making extensive use of guest lecturers and joint appointments. Similarly, members of our Engineering Faculty are often called upon to teach courses at other Ontario universities. Discussions to formalize certain types of collaboration have been held, however no firm agreements have developed. The Civil Engineering Department met with its counterpart at the University of Toronto last year. The High Voltage Group in the Department of Electrical Engineering is actively continuing discussions with the Universities of Toronto and Windsor regarding the future of High Voltage research in Ontario. Electrical Engineering has also been involved in discussions with Carleton University aimed at complementing research efforts. In addition, the Department of Chemical Engineering offers a professional master's degree programme to engineers residing in the Sarnia area. This is expedited by an arrangement with Lambton College in Sarnia. Obviously, two of the primary considerations are: (1) the elimination of duplication both in faculty and facilities and (2) the enhancement of a programme's ability to cover areas of specialization where the pool of expertise is small.

In the Faculty of Arts, several departments have formalized arrangements to co-ordinate their graduate programmes with those of other provincially-assisted universities. The Department of Political Science participates in a highly successful co-operative

venture, known as Co-operative Graduate Studies in Politics with the Universities of Guelph, Brock, McMaster and Waterloo Lutheran University. The expressed purposes of the scheme are to (1) co-ordinate course offerings, facilities and faculty, (2) produce wider scope for research, (3) allow joint supervision of theses, and (4) co-ordinate the possible development of a co-operative doctoral programme. The Department of Philosophy developed a course credit agreement at the graduate level, with Guelph and McMaster, before the implementation of the present O. C. G. S. scheme. Over the past few years, several students from Waterloo Lutheran University have taken a course from our Psychology Department's M. A. Sc. degree programme for credit towards their master's degree in Psychology at Waterloo Lutheran University.

At the graduate level, the Science Faculty has been collaborating with departments at Queen's, Waterloo Lutheran, Toronto, McMaster, and Windsor with the intent of avoiding multiple purchase of expensive specialized equipment and the appointment of additional staff to give special courses. Such collaboration tends to be organized on an individual basis among professors or among chairmen. The Division of Environmental Studies has developed an extensive co-ordination effort with other provincially-assisted universities. Programmes include joint course offerings and field trips, inter-

university graduate seminars, inter-university theses supervision and joint faculty appointments.

In general, departments have expressed great satisfaction with and appreciation for the development and success of the many growing co-ordination efforts. There have been some minor reservations about travelling and living expenses, especially for married graduate students. This, and other inhibiting factors of a geographical nature tend to induce some restraint in the development of more all-encompassing co-ordination.

(b) Detailed presentation of graduate enrolment data:

- (i) Enrolment in 1969-70 and 1970-71 (estimated) of master's and doctoral candidates.

See APPENDIX B1.

- (ii) Sources of intake of new graduate students in 1969-70 and 1970-71 (estimated).

See APPENDIX B2.

- (iii) Degrees awarded, by level, (master's and doctorate) in each academic year from 1964-65 to 1969-70 (actual) and 1970-71 to 1975-76 (estimated and projected).

See APPENDIX B3 and comment on next page.

Pattern of Master's Degrees, Thesis
Versus Non- Thesis

By University regulation, a Master's student may elect to fulfill his requirements in terms of courses alone or with a combination of courses and thesis.

The Science Faculty has year by year only a very few, perhaps two or three, non-thesis Master's students. There has been no change in this pattern over recent years.

In the Engineering Faculty, it is not easy to separate out the principal influential factors which may identify changing patterns. Because the non-thesis Master's degrees have been largely associated with fairly well developed programmes in specific study areas, there is no useful numerical pattern across the faculty. The non-thesis degree is more easily accommodated to part-time programmes and hence is favoured in particular disciplines appealing to students already in professional practice. Because of the numbers of graduate students involved, and the number of courses required for a course work programme, it is only economical to provide non-thesis Master's programmes in specific areas of study where we have the capability to mount them.

In the Faculty of Arts, the incidence of non-thesis

Master's degrees varies slightly from department to department, but there has been no noticeable change in these patterns over the years.

Until 1966, there had been only one Master's degree with thesis in the Faculty of Mathematics. Then with the input of new faculty and new ideas, Master's students were encouraged to write a thesis to complete the requirements for their degree whereas previously they had been actively discouraged. The result has been that during the present year about 20% of all Master's students are writing a thesis and it is anticipated that this proportion will continue to increase.

Naturally, when a student writes a thesis, the time for completion of degree is usually lengthened.

- (iv) Projections of enrolment year by year for the next five years.

See APPENDIX B4.

- (v) Sources of support for graduate students enrolled in 1969-70.

See APPENDIX B5.

- (c) General and Honours Programmes in Arts and Science:
 - (i) Outline the University's attitude regarding continuing differentiation between general and honours programmes.

All departments in Arts and Science are committed to the continuation of the present differentiation between general and honours programmes. The reasons differ in detail and emphasis, but the commitment remains.

In Science, the honours programmes are regarded as vital to the development of professional excellence in a major discipline, while the general programmes are designed for a Science oriented non-specialist education. Employers in certain areas consider the honours student's specialized knowledge essential.

In Arts, the honours programmes are considered to be essential as "education for excellence", while the general programmes provide a valuable liberal arts education for the non-specialist, and an essential background for those students contemplating careers in areas such as law, business administration or library science. There is no question that the pre-professional specialization of the Arts honours programmes is a prerequisite for specialized degree work and graduate schools.

On the other hand, the general programme is viewed as an excellent vehicle for the broad interdisciplinary education that many students desire. Another consideration is that differences exist in both student ability and student motivation. It is felt that the distinctions between programmes as they presently exist, are best serving both these requirements in university education.

Several suggestions have been made to attempt to reconcile some of the problems that naturally obtain in the system. For instance, one submission proposes a general liberal arts and science education for all students to the second year or fourth semester level. This would be followed either by general liberal arts course work to culminate in a three-year general degree or by two years (four semesters) of preprofessional specialization in an honours, joint honours or special programme (Canadian Studies, etc.).

In Arts and Science, great emphasis is placed upon flexibility to ensure that mobility between programmes is, at all times, open and viable. General students are free to transfer to honours, provided a specific level of performance is attained. To provide an opportunity does not guarantee that all students are able or willing to avail themselves of it equally well. And although mobility is ensured, the departments exercise firm control over the type of degrees granted.

Perhaps the more important question to be considered in the context of this honours-general discussion is differentiation at the course level as opposed to differentiation at the programme level. While the total number of courses in which different material is prepared, for honours versus general students, is small, there is no question about its necessity in certain areas. Particularly in the mathematics and sciences, course differentiation is deemed necessary, while in arts generally no similar distinction exists.

In the sciences, and to a lesser extent in mathematics, the demand for professional specialization and technical competence in employment situations requires considerably more detailed and exacting course work for the honours student. The general student, on the other hand, is engaged in pre-professional training and does not usually intend to pursue a professional career in the mathematics or sciences. His career objectives are usually directed towards teaching, laboratory or industrial employment, or occasionally towards professional training in another field such as medicine, business administration or law. In addition, differences in both the background and motivation of incoming undergraduates mitigates against complete standardization of course work. However, this honours-general differentiation seldom results in increased teaching costs because of the usual necessity of multiple sectioning in particular courses.

In the Faculty of Arts, course differentiation has never occurred in any significant manner. In most disciplines, the only distinctions made between honours and general programmes are in the level of performance expected and the total number of courses required for a specific degree. In some cases, there are additional tutorials and assignments for honours students. However, these are the exception rather than the rule, and only occur when class size is such that sectioning is required. In the Arts Faculty, the possibility of increased teaching costs, because of duplication of honours and general course work, is very remote.

However, the education of honours students is more costly in other parameters, particularly at the fourth-year level. Honours students require relatively more seminars, tutorials and specialized course work than general students. This demands a much higher faculty/student ratio and smaller class sizes, beginning at the second-year level when the honours-general distinction commences. From this point on, increased costs are incurred for faculty, library services, and physical space requirements. At the present time, the additional grant received for honours students appears to be adequate to meet these costs.

There are new programmes developing in which honours-general differentiation is deemed unnecessary. The Integrated Studies programme

makes no honours-general distinctions, and the newly developing Inter-Faculty Programme Board plans no distinctions except the usual extra year of study for honours students.

Further, it is significant to note that some differences which exist between arts and science are externally imposed. Both industry and government tend to consider a four-year honours chemistry graduate a "chemist" ; but there is generally a reluctance to grant the same professional designation to an economics or political science graduate until after he has completed at least his master's degree and often his doctorate. The usual absence of intensive and specialized undergraduate training in the arts student's major discipline contributes to this reluctance.

In conclusion, the Arts, Science and Mathematics Faculties of the University of Waterloo definitely wish to see the differentiation between programmes continue. Any cost increments which are incurred by the honours-general differentiation are far out-weighed by the benefits that accrue. The Ontario honours degree provides a recognized and required level of sophistication in a given discipline, while the general degree fills specific needs for individuals who desire a less specialized background.

- (ii) University comment on the effects of the adoption of a single weight for arts and science students for operating grant purposes.

The suggestion that a single weight be adopted for arts and science students requires that the weight for arts students be increased and the weight for science students be decreased if the total grant support for these students is to remain the same. The attached table shows that the University of Waterloo would have a loss of income of almost \$8 million over the next six years, if such a change as discussed last Spring by CPUO, were made in the basic income formula for arts and science. It is suggested that no formula change should be made which would decrease one university's income by such a significant amount unless there are compelling reasons. In this case, there seems to be no logic in support of such a change other than that it would provide an administrative convenience for one or two universities. There are, on the other hand, clear indications that a decrease in the weight given to students registered in subjects with a science weighting would not only deter future development of these subjects but damage their existing position in the entire Provincial system.

The basic income formula is intended to provide an equitable basis for Provincial grant support to universities. The sciences have real costs for laboratory technicians, demonstrators, supplies and equipment associated with laboratories which are not required in arts.

Our experience in the relative costs of an arts versus a science student would not support a reduced weight for science students. On the contrary, we believe that the present overall weighting given to science students is too low as indicated in our letter of January 10th, 1968 to the Chairman of CUA. An effective lowering of the weight given to science students to the point where income would be well below actual costs would inevitably deter the newer universities from developing science programmes. In the cost squeeze ahead, universities with existing strong science programmes might be forced to cut them back for the same reasons.

It might be argued that if the present formula weights for arts and science were weighted according to the number of students involved to produce an average, there would be no change in grant support. This is true for the system as a whole and for any university whose distribution of arts and science students is identical to that of the system as a whole. However, universities which have developed and have relatively large enrolments in those subjects which are given science weights would receive substantially reduced grants, and universities which have relatively large enrolments in arts would receive increased grants. The absurdity of the suggestion is that universities with larger costs associated with students requiring more expensive education would be given reduced grants and those with large numbers of students requiring a less expensive

education would be given increased grants.

May we recommend that another approach to this question could be found in basing the formula grants on synthesized student numbers. Such a process would convert students to full-time equivalent students actually taught by a discipline, or group of disciplines, based on student term courses taught. The disciplines themselves can easily be designated as arts or science. One then needs only to sum the students' term courses given by each discipline and convert these into FTE arts or science students for grant purposes. Therefore, institutions which cannot define separate arts and science students by home enrolment could do so based on the discipline source of courses taken by these students. This mechanism is already used in the case of part-time students.

These comments relate to the assumptions and weights for grant purposes proposed for discussion last Spring for combining arts and science honours and general. It is recognized that your question did not imply necessarily these weightings. However, it is difficult to respond quantitatively without relating to some hypothetical weightings. Should the Committee on University Affairs have some other weightings in mind, we would have to examine our situation in the light of those weightings, when known. However, the general principle remains the same and our subjective comments stand.

TABLE I

A formula change considered at the March 13th, 1970 Meeting of CPUO suggested combining Arts and Science honours and general and apply the following weights:

Years I to III	1.20	BIU's
Years IV and make-up	1.75	BIU's
Part-time <u>Student courses</u>	1.00	BIU
6		

The following would result:

<u>Year</u>	<u>Existing Formula BIU's</u>	<u>Theoretical Formula BIU's</u>	<u>Decrease in BIU's</u>	<u>BIU Value \$</u>	<u>Loss in BIU Income \$</u>
1970-71	20,464	19,830	634	1,650	1,046,100
1971-72	21,999	21,240	759	1,730	1,313,070
1972-73	22,963	22,214	749	1,730	1,295,770
1973-74	23,701	22,904	797	1,730	1,378,810
1974-75	24,263	23,441	822	1,730	1,422,060
1975-76	24,659	23,829	830	1,730	1,435,900
					<u>7,891,710</u>
					=====

Note:

Fall Term Numbers (Constituent University)

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Arts	2,467	2,748	2,781	2,781	2,795	2,800
Science	3,460	3,716	3,895	4,025	4,106	4,181

Arts includes all years arts, and general and first-year honours for Geography, Planning, and Psychology.

Science includes all years Science and Mathematics, and upper-years honours, Geography, Planning, and Psychology.

The above figures show the heavy weighting of student numbers, at Waterloo, towards the Sciences as defined in the basic income formula. It is speculated that most Ontario Universities' mix in student numbers for similar disciplines would weigh towards Arts. This is the reason the University of Waterloo would suffer so badly from such a formula change.

(d) Health Science Programmes - School of Optometry:

- (i) Enrolment (undergraduate and graduate) in each Health Science Programme, year by year, for 1970-71 (estimated) and 1971-72 to 1975-76 (forecast) -- as per Form F.

SEE APPENDIX C 1.

- (ii) University comment on:
- the relationship of forecast enrolment to provincial need for health services personnel.
 - the possibility of expanding enrolment in each Health Science Programme with staff and facilities now on hand or included in current forecast.

Current studies show that Ontario's need for optometrists is greater than the total number available to it from the School of Optometry. At present, Ontario requires about 50 new optometrists per year. This figure of 50 graduates will not be reached until 1974, creating still further shortages in the interval.

The College of Optometrists of Ontario has estimated that the present population-per-optometrist ratio of 13,500 to 1 will only be maintained if there are 50 graduates per year available for the province for the next ten years. Thereafter, it is hoped that the ratio will be improved to a more desirable figure of 10,000 to 1. There are many factors which affect predictions concerning the ratio; in particular the relatively high average age of optometrists in the province should be noted. Certainly, it can be stated that the demand for optometrists will exceed the supply for many years to come.

Since the creation of a building for the School of Optometry is presently under discussion, it would be quite possible to increase the output of optometrists to, say, 65 per year, some four years after completion of the building, if the projected scale of its facilities were increased, particularly for the clinical area of instruction.

- (iii) Total operating costs of each Health Sciences Programme, for 1969-70 (actual), 1970-71 (estimated) and 1971-72 to 1975-76 (forecast) and University comment as to sources of required funds to meet such costs -- as per Form G.

SEE APPENDIX C2.

- (iv) Out line of capital costs of University projects in the Health Sciences developed during the past five years and/or contemplated for the next five years. Identify each project and indicate the scale and unit cost (per n. a. s. f.), actual or estimated, for that project.

Capital Cost Projects During Last Five Years

Although there was no indication of recognition of the School of Optometry under the Health Services Programme at that date, in July 1968, DUA approved a \$95, 000 capital project (+5% from University = \$100, 000) in respect of the School of Optometry, as follows:

For Equipment for the Clinical Laboratories	
of the School of Optometry	\$ 72, 000
For Equipment for post-graduate course in	
the School of Optometry	<u>\$ 28, 000</u>
	\$100, 000

Capital Costs Projected for Next Five Years

An Optometry Building is planned for completion in 1972 to house the teaching programme and the Optometry Clinic for about 300 students. It is estimated that the structure will be 60, 728 n. a. s. f. which at a project cost (excluding Site Services and Utilities) of \$4, 448, 030 is

\$73.41/n.a.s.f. The gross square feet for the building are estimated at 102,000. About 40% of the total project cost is associated with the Optometry Clinic. The project costs are detailed below.

TABLE II

Building costs	\$3,100,800
Fees & Misc.	330,885
Furniture	
Office & Teaching	145,496
Clinic	72,370
Equipment	
Office & Teaching	359,116
Clinic	<u>542,417</u>
	\$4,551,054
Less taxes refundable	<u>93,024</u>
	<u>\$4,458,030</u>

(v) Outline of uses of Health Sciences facilities for university programmes other than Health Sciences Programmes.

There are at present no Health Sciences facilities on the University campus; the School of Optometry uses DUA facilities exclusively. However, the University is unable, at this time, to provide enough space in one location to house the Optometry faculty members. Consequently, the faculty members have their offices in several buildings and the

Optometry Clinic is housed in a rented facility in the centre of Waterloo more than two miles from the campus.

2. FACTORS AFFECTING LEVELS OF UNIVERSITY SUPPORT

(a) Detailed presentation of types and sizes of classes:

(i) Summary of data submitted for C.P.U.O. survey.

SEE APPENDIX D.

(ii) Outline of new approaches to teaching and learning being considered by the University and possible effects of such on class size and operating costs.

There are essentially two reasons for the continual development of new techniques in teaching. The first goal is the obvious academic one -- the enhancement of abilities to disseminate and assimilate knowledge. The second purpose is evolved from the constant fiscal pressure that exists. Can the cost of teaching be decreased? Both are valid reasons to pursue new approaches. However, they are not always mutually sustaining goals and can become contradictory. Often more effective student-teacher interaction leads to increased costs.

In recent years the University has been faced with increasing enrolment pressures and more flexible and diverse academic standards at the secondary school level. Within the whole field of post-secondary education, the tendency toward narrow specialization has also been a matter of concern. These factors place considerable pressure for innovative and imaginative experiments in teaching and learning

methods upon almost every discipline.

Experimentation at the University of Waterloo has frequently involved altering the basic lecture and tutorial/laboratory format with varying degrees of success. In undergraduate subject areas which attract a large number of students, considerable diversification is possible. For instance, Mathematics offers its first-year courses at the Scholarship, Honours, General, and Pass degree levels, and these courses are further sub-divided for Co-operative and Regular programme students. In addition, special courses are offered for students from other disciplines. In this way, each group of students may have its specific needs considered and this in turn can lead to more effective and economical teaching; economical in the sense that the instructors' and students' time is used more productively.

Similarly, the History Department provides four different approaches aimed at differing needs for first-year history students. These approaches vary from a straight lecture format, through to specialized topic seminars. The Economics Department has reduced the section size of its freshman classes to sixty from a previous size of over one hundred. Slightly higher course costs will result, but the Department feels that from an educational standpoint, these increments are fully warranted. The Psychology Department teaches its first-year introductory course to approximately fifteen hundred (1500) students.

The Department has considered several experimental approaches but none is fully operative at the present time.

The Division of Environmental Studies has placed an increasing emphasis on student discussion and project groups, in part, to reduce the impersonality of large classes. In addition, these groups introduce students to the work style that is characteristic of their discipline, that is, problem solving by integrating diverse and interdisciplinary contributions into coherent solutions or programmes. To achieve this end, many classes must be divided into smaller sections; this requires more faculty time and increases the demand for well-qualified graduate student assistants.

In the Faculty of Engineering, new developments in teaching methods indicate that there will be continuing change in engineering education. There has been a reduction in the formality and rigid timetabling of course work; there has been an increase in open-ended and long-term problems and laboratory work. Attempts are being made to strengthen class, division or group identity by relating separate courses taken by groups of students to the overall requirements of a programme. Another consideration is the development of fully equipped teaching facilities in which the teaching methods, teaching aids and media to be used, can be chosen and changed to suit the immediate needs of the subject and the particular class of students.

The Science Faculty is presently revising its whole chemistry curriculum. The object of this revision is to combine Honours Regular and Honours Applied courses, wherever possible and to eliminate uneconomical courses. When fully implemented, the changes will effect an increase in class size in many cases, and an overall manpower saving of some twenty per cent (20%). Furthermore, there will be a considerable saving in equipment costs by integrating laboratories for the second and third years. The School of Physical Education and Recreation has been gradually reducing its formal lectures in favour of more personal teacher-student contact in tutorials and seminars. Similarly, the History Department has reduced and consolidated lecture courses at the upper-year levels to allow for smaller contact groups.

Many departments in the Arts Faculty have noted changing attitudes amongst both teachers and students. There is a tendency towards an easier, more relaxed and informal set of relationships, in which a great deal of very effective teaching and learning is done outside the classroom situation. This type of learning situation usually has no design boundaries. It occurs on or off campus, irregularly and informally, and is substituted for a portion of the regular "in class" time and space allocation.

Several developing programmes at Waterloo are experimenting with new methods. Specifically, Integrated Studies offers an unstructured, shared-decision-making format which emphasizes independent study. The Inter-Faculty Programme Board will make liberal use of team teaching and guest lecturers, as well as technical teaching devices to enhance its interdisciplinary approach.

One of the most difficult problems facing both faculties and departments is the evaluation of new teaching methods. Traditional units of measurement are usually removed or heavily modified when experiments are implemented. Comparative cost evaluation is often impossible because neither the teaching unit nor the time period for a specific class remains constant through the change. In most cases, experimentation tends towards smaller class groupings, less rigid timetabling and format structuring, and more relaxed instructor-student relationships. However, most changes in teaching and learning methods assume that costs are fixed and that any attempts must be directed toward the more effective reallocation of present resources. On the other hand, new teaching methods often are related to new advances in educational technology. It is in this area of activity that the cost evaluations can be made in a more accurate and critical fashion.

- (iii) Comments on possible effects of educational technology on class patterns at the University.

There is often considerable confusion in determining what differences exist between new teaching methods and new teaching devices. Educational technology is inherently linked to new teaching approaches and often these new approaches depend upon new technological developments for their viability. It is essential that educational technology be defined in this context, since the technical devices are associated with the collection, storage, and dissemination of information, such as computers, audio tapes, television, films, libraries, or laboratories. Most of the new and experimental approaches to teaching mentioned earlier are inextricably tied to the continual development of these new and improved technological devices.

The general effect of the expansion of the numbers and complexity of the media available for the handling of rapidly increasing amounts of information, places an increasing load on the individual faculty members to act as advisors, collators, interpreters, and reviewers. As simple media for the dissemination of information, the role of faculty is decreasing. The advisory interpretive guidance role is increasing. More teaching class units are developing, which are diverse in format,

and which have an increasing emphasis on problem solving and project work. The student-teacher contact, rather than decreasing, is tending to increase and to be on a more informal basis. Educational technology has made so much information available that the core problem is not availability of information but rather guidance in its selection, assimilation and application to problems. In most disciplines technological devices are considered as auxiliary resources to assist, rather than replace, personal contact.

The applicability of technical aids to teaching varies widely between faculties. However, every department makes some use of the tremendous advantages educational technology affords. For example, the Science Faculty utilizes both video tapes and television to demonstrate laboratory experiments and techniques wherever facilities permit. This saves student start-up time and reduces manpower requirements for laboratory demonstrators. The School of Optometry anticipates that video tape television will greatly facilitate demonstrations of clinical techniques and permit improved methods of teaching. Similarly, the English Department has mixed the presentation of taped television lectures with live classroom discussion. This arrangement hopefully combines the benefits of experienced lecturing by professors of English with personal contact in small groups supervised by teaching assistants. During the past three years of operation, this system has produced

greater timetabling flexibility and allowed certain audio-visual effects that could not otherwise have been obtained. The Department of English is continuing to experiment with the use of television, specifically in preparing a pilot series of enrichment lectures.

Perhaps no other new approach in educational technology has stimulated the controversy that television has. However, most of the departments involved agree that, in order to properly utilize both the potential of the medium and the extensive financial investment required, it is necessary to devote a tremendous amount of time to the development of the requisite television tapes. Faculty members need to replan and redesign the presentation of course materials that will best lend themselves to the television medium; there is an increasing awareness that television can seldom be effectively used as simply a video taped lecture.

On the other hand, audio tapes can be very effectively used as a lecture record for instant student review or in language laboratories. For example, language instruction comprehension and articulation are improved through the employment of audio tapes; the Anthropology Department is developing an audio tape series for their first-year introductory course and students often make use of audio tapes to record lectures on a personal basis and at their own expense.

A correspondence course programme, which employs audio tapes in conjunction with written lecture notes, is being received with

enthusiasm by students. The growth in this programme has been dramatic; in 1968-69 only four courses were offered; in 1970-71, twenty courses from two faculties are planned. This growth suggests the development of an improved and rewarding method of taking the university into the home with more convenience to the student and a decrease in operational overhead for the University. Although it is technically possible to move from audio tapes to audio-visual tapes, the costs involved make such a change prohibitive at present.

Microfilm libraries and computer tape information storage systems have been in use for several years but it is significant to note that these facilities receive constant and heavy use. The Arts Library found it necessary to greatly enlarge its microfilm reading and storage areas this past summer. It seems evident that future information storage and retrieval systems will become a part of computer assisted instruction in many disciplines. The costs of computerized learning are high, and in some instances, the appropriate allocations in terms of space and personnel may be greater than the requirement for conventional methods. The University is proceeding cautiously in this sphere of technical activity. However, a number of departments and individuals are making efforts to keep abreast of developments in computerized programmed learning.

The Psychology Department is planning to install teaching machines in their new Psychology building; actual construction of the

building is expected to commence in early 1971. They hope to use the machines to facilitate the comprehension of basic concepts and data in the introductory Psychology course.

Many areas of the university community have expressed a cautious, "wait and see" attitude about the benefits of technical innovation. There is a definite tendency for technical devices to be used as teaching aids in courses that are of an introductory or quantitative nature. Most reservations about educational technology apply to upper-year courses that are of relatively smaller size and demand instructor-student contact on a personal basis. In these areas of post-secondary education, there may well be no substitute for gathering together in one room a good teacher with a sufficiently small number of students to allow real and personal communication. This approach may be comparable in cost or even less expensive than the cost of devices for programmed learning which in most instances supplement, but never replace, individual instruction.

(b) Resource Allocation - University Operating Funds:

- (i) Budget allocations for major salary and non-salary categories for the years 1969-70 (actual) 1970-71 (estimated) and 1971-72 (projected).

SEE APPENDIX E1.

- (ii) University comments on adequacy of patterns indicated in (i) above.

At this stage, the budget for 1971-72 has not been developed far enough for inclusion on the Form CUA-70-I or to make any reasonable comments concerning levels of expenditure. For purposes of the following comments we have included the 1968-69 expenditures in order that we may have three years to show the pattern relative to allocations.

Reference to
CUA-70-I

2. Total Operating Expenditures

Percentage increase in allocation, as measured by dollars per unit of weighted enrolment.

1969-70 over 1968-69	10.2%
1970-71 over 1969-70	9.4%

2. (i) Academic Salaries and Fringe Benefits
and

- (ii) Percentage increase in allocation, as measured by dollars per unit of weighted enrolment.

	<u>Salaries</u>	<u>Benefits</u>	<u>Total</u>
1969-70 over 1968-69	11.4%	13.8%	11.6%
1970-71 over 1969-70	16.4%	17.1%	16.5%

This indicates an increased proportion of the operating expenditures is being allocated to the Academic Salaries and Benefits over the three years.

The dollars translate into a faculty/student ratio as follows and indicate that there has been no deterioration in the teaching resource to student ratio over the stated period.

	<u>1968-69</u>	<u>1969-70</u>	<u>1970-71</u>
Full-time equivalent students	7,873	9,568	10,856
Full-time equivalent faculty	502	599	689
RATIO	1:15.68	1:15.97	1:15.76
Teaching Fellows (FTE-Teaching Resources 3:1)*	168	206	238
Total full-time equivalent teaching resources	670	805	927
RATIO	1:11.75	1:11.88	1:11.71

*At a full-time equivalent of three, full-time teaching fellows equals one teaching resource.

Other Operating Expenditures

1. Furniture and Equipment

The three years show a fairly constant level of dollar expenditure which may be mainly attributed to the degree of maturity reached by the University in its inventory levels.

2. Library

Percentage increase in allocation as measured by dollars per unit of weighted enrolment:

	<u>Acquisitions</u>	<u>Salaries & Benefits</u>	<u>Total</u>
1969-70 over 1968-69	66.7%	19.6%	38.2%
1970-71 over 1969-70	8.0%	14.5%	11.4%

Reference to
CUA-70-I

The University's decision to increase its Acquisitions' allocation in 1969-70 has been maintained through 1970-71.

3. Plant Maintenance

Percentage increase in allocation as measured by dollars per unit of weighted enrolment:

	<u>Salaries & Benefits</u>	<u>Other</u>	<u>Total</u>
1969-70 over 1968-69	14.4%	(3.2%)	7.7%
1970-71 over 1969-70	4.2%	(5.1%)	1.1%

The increase in 1969-70 and levelling in 1970-71 is due to building openings in 1968-69 which required full maintenance and operating costs in 1969-70. It is anticipated that there will be a further increase in 1971-72 and 1972-73 when the new buildings such as the Engineering IV and Chemistry addition are in full use.

4. Remainder

Breakdown of salaries into areas, by year. This table further illustrates the pattern of allocation mentioned earlier.

	<u>1968-69</u>		<u>1969-70</u>		<u>1970-71</u>	
	\$000	\$per unit	\$000	\$per unit	\$000	\$per unit
Technicians	1,019	65	1,047	57	1,193	58
Academic						
Support Staff	<u>732</u>	<u>47</u>	<u>1,059</u>	<u>57</u>	<u>1,209</u>	<u>59</u>
Direct Faculty						
Cost	1,751	112	2,106	114	2,402	117
Academic Service*	1,683	108	2,233	121	2,804	137
All Other	<u>1,048</u>	<u>67</u>	<u>1,296</u>	<u>70</u>	<u>1,565</u>	<u>76</u>
	<u>4,482</u>	<u>287</u>	<u>5,635</u>	<u>305</u>	<u>6,771</u>	<u>330</u>

*Academic Service includes Audio-Visual, Computing Centre, Co-ordination, Registrar and the Office of the Vice President, Academic.

The following is a summary of comparative expenditures by functional areas for the three years, including the dollars per unit of weighted enrolment:

	Actual 1968-69		Actual 1969-70		Budget 1970-71	
	\$000	\$unit value	\$000	\$unit value	\$000	\$unit value
<u>Academic</u>						
Faculties & Schools	14,262	912	18,116	977	22,896	1,116
Academic Service	3,617	231	5,184	280	5,940	289
Sub-total	17,879	1,143	23,300	1,257	28,836	1,405
<u>Administrative</u>	1,031	66	1,262	68	1,503	73
<u>Student Affairs</u>	245	16	318	17	412	20
<u>Physical Plant</u>	2,562	163	3,180	172	3,536	172
<u>General</u>	665	43	1,169	63	1,124	55
	22,382	1,431	29,229	1,577	35,411	1,725

(iii) Outline of sources of revenue and expenditures for ancillary operations for the years 1969-70 (actual), 1970-71 (estimated) and 1971-72 (forecast).

See APPENDIX E2.

(c) Effects of the Academic Marketplace:

- (i) University comments on general conditions in finding qualified faculty members.

It would appear that the overall faculty recruitment picture is somewhat more favourable than it was a year ago. This is a direct result of hiring cutbacks across the continent and the increasing output from graduate schools; however, these two factors are not necessarily constants. The Economic Council of Canada, in its second staff study on enrolment in educational institutions, projects national full-time university enrolments to more than double in the next ten years from 1969-70 to 1979-80. Specifically, an increase of three hundred and ninety-six thousand (396, 000) or 122.4% is anticipated between last year's figures and 1979-80. In the context of the Department of University Affairs' forecasts which presently run to 1975-76, the increase expected by that time is two hundred and thirty-seven thousand (237, 000) or 73.2%. This obviously will cause changes in the academic marketplace and the recruitment situation at Waterloo must be considered in this context.

The Science Faculty has found that there is an adequate number of faculty available at the assistant and associate professorial levels, but generally, there is still a shortage of first-class senior personnel

with administrative experience. Qualified specialists, as always, are hard to find. The School of Optometry, although successful in filling its immediate staff needs, has noted a growing shortage across North America. Last year there were only two (2) doctorates awarded in Optometry on this continent, yet a new school opened in Alabama, with another planned for New York in 1971. Initial planning is underway for further schools in Florida, Michigan and Western Canada. There is a critical and worsening shortage of qualified teaching personnel in this field.

The School of Physical Education and Recreation has noted no substantial changes in the perennial shortages of qualified teaching personnel. The Waterloo programmes are relatively new and unique, and even an increase in the limited output of the traditional graduate schools could not satisfy the requirements of these programmes. It does not appear that this shortage will be remedied in the short run.

In Engineering, there appears to be a generally good supply of qualified people. However, this supply depends greatly upon the area of specialization required for each particular position. Our educational system tends to graduate large numbers of doctoral candidates in well-established areas where our need for new faculty is minimal. We therefore must look towards research laboratories and research

oriented industrial organizations for potential faculty members with particular types of experience. In Canada this pool is relatively small.

The Faculty of Mathematics has found that no shortages exist of qualified applicants for positions in Pure Mathematics. However, there are very few applicants in the applied areas and there is a shortage of capable Canadian applicants.

In Arts, the supply of highly capable senior faculty is still limited. However there is a large international pool of recent doctorates for junior appointments in most fields. In Arts generally, there is a shortage of qualified Canadian applicants. However, in the social sciences - economics, political science, sociology, anthropology and history - the supply of Canadian-trained Ph. D. 's is very limited and indeed critical. This shortage is felt most severely in those areas of each discipline in which a Canadian teaching input is deemed to be important and often vital.

In general, although the international market is good, the Canadian supply is still very limited and has only marginally improved recently. Conditions are much better than they were a year or two ago but there are particular fields - some of a highly specialized nature and others which require a Canadian input - where the supply does not yet meet the demand.

- (ii) Detailed outline of sources of new faculty appointed during the period 15th September, 1969, to 15th September, 1970, including citizenship status and country of first and last degree.

SEE APPENDIX F.

3. FUTURE PLANNING

(a) Updating of five-year forecast (as submitted in the Fall of 1969):

(i) Undergraduate enrolment forecast for each year to 1975-76.

(ii) Outline of changes in proposed developments since previous forecast, with documentation as to reasons for such changes, and new developments contemplated by 1975-76.

SEE APPENDIX G.

ENROLMENT FORECASTS

Appendix G1 consists of the completed Department of University Affairs forms for Long-Term Selected Enrolment Data 1970-71 to 1975-76.

Appendix G2 presents the updated details of the enrolment forecasts to 1975-76, exclusive of new programmes.

The 1970-71 data are budget numbers unadjusted to actual, as the actual data are not known at the time of writing.

This appendix consists of 28 pages which are broken down as follows:

(1) Pages 1 and 2 are the Gross Enrolment Summary for Full-Time Students to 1975-76. This summary includes all students enrolled including off-campus

co-operative programme students.

- (2) Pages 3 and 4 are summaries of Full-Time Students on Campus by Terms. These numbers are used in determining the interim capital formula entitlement. Note the decrease in the growth rate from 8.9% in 1970 to 1.3% in 1975.
- (3) Pages 5 to 28 provide the enrolment projections by faculty, school, or division and year by year for the period up to 1975-76. Co-operative courses show term totals for Fall, Winter, and Spring each year, and the full-time equivalent number of students for grant and teaching purposes. The graduate enrolment projections are provided separately in the last 5 pages and include separate graduate summaries. These are, however, also presented in (1) and (2) above.

(b) Capital requirements - as per interim capital reporting schedules:

SEE APPENDIX H (Forms M1 - 5 and N).

Note: Form N was designed to provide a short summary of the data prepared for Form M1 - 5.

(c) Brief descriptive outline of proposed new programmes:

In last year's brief to the Committee on University Affairs, the University of Waterloo completed "New Programme Information" forms for thirteen new programmes. These are not duplicated in this year's brief, with one exception. The 1974-75 Ph. D. programme in French has been slightly revised and is submitted as Appendix I4.

It is perhaps appropriate to report that the Master's programme in Economics has been favourably appraised and approved by O. C. G. S. and has enrolled its first students this Fall. Appraisal of the History Ph. D. programme is pending for Winter 1970-71. The undergraduate programme in Canadian Studies offered its first course this Fall, while Latin American Studies was delayed until 1971-72.

(i) New Programmes for 1971-72

The School of Optometry is planning to introduce a Master of Science programme next year. This degree has received favourable appraisal by O. C. G. S.
SEE APPENDIX II.

The School of Physical Education and Recreation has submitted plans for a M. P. E. R. degree programme. This degree in Kinesiology was mentioned in last year's brief, However, this is the first submission

of a detailed form UA4.

SEE APPENDIX I2.

The Inter-Faculty Programme Board plans to introduce its first thematic degree programme next year. This programme is projected to realize gradual growth into several degree areas.

SEE APPENDIX I3.

(ii) New Programmes for 1972-73

As indicated last year, several new programmes have tentative commencement dates of 1972-73. There are no additions or changes to this listing.

- (d) Outline of programmes and/or courses to be dropped or reorganized in 1971-72 and 1972-73:

In any growing and changing institution, attempting to be responsive to the needs of the society it serves, revision and reorganization is constantly underway. Many academic departments and faculties will make some changes in course offerings. These revisions are quite normal but cannot be fully forecast. The University's calendar lists of courses available are dependent upon many differing variables. However, the changes that result seldom indicate a major reallocation of personnel or physical resources. Instead, they usually indicate an internal departmental decision regarding student demand versus resources available in a given year.

On the other hand, changes in programmes or whole courses of study often represent major revisions in both administrative structure and resource allocation. Changes of this type are less common and usually can be accurately forecast as they develop. The Science Faculty is currently reorganizing the Chemistry curriculum. The object of this revision is to combine Honours Regular and Honours Applied courses wherever possible and to eliminate uneconomical courses. The changes will start in Year I this year and be completed through to Year IV by 1973-74. Science also anticipates that second- and third-year mainline Biology courses will be split

into General and Honours sections by 1973. This revision into two streams is required because of the increased sizes of classes.

The administrative structure of the Faculty of Arts will be changed in the next few years. Some of these structural changes have reached the final planning stage but most require further study and analysis. In no case is a distinct shift in the nature of the programmes envisaged, though the number of courses offered and the articulation of General and Honours programmes is likely to evolve with changes in student demand. Details on each discipline involved are provided below.

Anthropology presently offers a Major Programme and an Honours Programme. Now a part of the Department of Sociology and Anthropology, it may either emerge as an autonomous department within twelve months, or become an element in a new structuring of Social Science disciplines. Present offerings in this field are being given a new emphasis under the title, "Cultural Ecology".

Dramatic Arts may in the next year or two emerge as a Division of Drama and Theatre Arts, still reporting to the Chairman of the Department of English. The Division may develop General and Honours programmes that are distinct from the General and Honours programmes in English. The offerings of the Division will be a further articulation

of undergraduate courses presently offered, and not essentially a "new" programme.

Fine Arts is now administered directly by the Dean of Arts. A General B. A. was reported on Form UA4 in 1969. The programme is not yet implemented. An Honours B. A. programme is presently under study. Fine Arts may emerge as an administrative Department in the next year or two.

Human Relations is presently in the first stage of a phased development leading to its emergence as a Department separate from Psychology. Present plans envisage a continuation and articulation of Master's and Ph. D. programmes already authorized and operating.

Religious Studies presently consists of a programme leading to a B. A. Several courses are offered by both the University and the Colleges. Waterloo Lutheran University's courses are offered in co-operation and students may move back and forth between the several institutions. The present administration, by a Co-ordinating Committee supervised by the Dean of Arts, is likely to give place to a departmental structure within a year or two.

(e) University views on effects on future planning of:

(i) Capital formula standards as now applied.

The University's South Campus building programme to 1973 has remained intact in terms of the individual buildings planned at a total cost of about \$26 million. The changes in building plans that can be noted by comparing the Fall 1968 brief and this submission to this Committee include a significant decrease in the allowance for furniture and equipment in the technological buildings, and a phasing of the Chemistry and Engineering Buildings in 1971 and 1973. Therefore, we are attempting to construct the buildings and complete the projects within the constraints of the dollar values of 1968 and cash flow entitlements.

It had been understood that the \$55/n. a. s. f. project cost would escalate based on a reasonable increase in construction costs from year to year. It came as a shock, when the Minister's letter of March 31, 1970 was received, to find out that the \$55 would not be increased. The tenders for Phase I of each of the Chemistry and Engineering Buildings were on hand at March 31 and because of the policy change, it was necessary to cut more than \$1, 000, 000 from these two projects at a time when they were fully planned and tendered. Unfortunately full value for credits is never realized from deletions from tendered contracts. All buildings in the design process at this time are being constrained to

a fixed dollar total project cost. We find the cost estimates are higher for construction cost than allowed at each level of development at which a quantity surveyor's estimate is required for buildings in the planning process. At each of these stages, therefore, reductions are made in the quality standards when compared with those in existing buildings. For example, the Administration Buildings, for completion in 1972, are planned at a construction cost of \$25 per gross square foot. To meet this more than 50% of the fully partitioned offices have been eliminated. This move was designed to reduce the cost for doors and door hardware, air systems, and variances to lighting modules. It is difficult to know what the effect of this will be. However, many senior level supervisors who have had separate offices in their existing facilities will not have a privately enclosed office in the new building.

Form M-4 shows that the University's committed building programme to 1973 consumes all but approximately \$2,000,000 of the entitlement that will be generated up to 1975-76, which is virtually the completion of the South Campus. There will be other buildings needed for the South Campus population. The growth of Mathematics will eventually force the Engineering-Mathematics-Science Library off the 4th floor of the Mathematics & Computer Building. At that time an EMS Library Building will be required. The Physical Education and Recreational facility cannot, now, house the existing faculty members in

that building. These faculty members are also housed in the Mathematics & Computer Building. It is visualized that a third classroom building serving the same function as the Engineering Lecture Building and the Arts Lecture Building will be required in the vicinity of the Science, Mathematics, and Physical Education area. It is expected, in all, that perhaps an additional \$7 million to \$8 million in structures will be required to complete the South Campus to service properly the approximately 14,000 students enrolled.

The interim capital formula provides for 24 n.a.s.f. for one-half the Spring term undergraduate enrolment. We are pleased that the interim formula recognizes that this programme does create space needs. However, the University made a proposal to the Department of University Affairs for consideration of the effects of the three-term co-operative programme on space requirements that would increase the entitlement by about 100,000 n.a.s.f. The proposal will not be repeated here as it is on record with the Department, but it can be seen that the interim capital formula is providing about 30% of the amount the University thinks can be justified in consideration of the third-term teaching. Were the University's proposal accepted, an additional 70,000 n.a.s.f. would generate about \$4,000,000 which, when added to the \$2,000,000 uncommitted by 1973, would go a long way towards providing the balance of the buildings that will be needed. It is also assumed that

at some point in the next year or so, the \$55/n. a. s. f. allowance will have to be increased if construction employee wage settlements continue as high as they have this year. Only if these considerations are fulfilled in the University's favour, can the University properly complete the building programme for the South Campus.

The Committee of Presidents of the Universities of Ontario, Sub-Committee on Capital Financing, is examining the Interim Capital Formula in detail from a university system point of view and the points being discussed by that Committee with the Committee on University Affairs will not be duplicated here. There are one or two specific comments we might make:

1. 130 sq. ft. space standards -- we continue to suggest that consideration be given to the exclusion of spaces such as residence dining areas, central heating plants and mechanical spaces in the interim capital formula space inventory. The University of Waterloo inventory includes approximately 59,000 sq. ft. of space for residences and central boiler plant as computed by Taylor, Lieberfeld, and Heldman. Based on the 1969-70 enrolment, this results in 4.6 square feet per weighted student unit included in the inventory for this type of space.

2. The \$55/n. a. s. f. -- This unit cost allowance has been misunderstood by many people -- faculty, architects, contractors, and lay people. They miss two points: first, that it is cost-per-net-assignable square foot and not gross (a measure commonly used in the construction field); second, it is a total project cost that includes fees, furniture, equipment, and contingency as well as building construction cost. A technical building with a reasonable allowance for furniture and equipment, if held to \$55/n. a. s. f., would leave about \$24 for construction cost per gross square foot. Holding to this cost level, especially buildings to be constructed two or three years hence, will result in a significant reduction in the quality of buildings that can only lead to an increase in operating and maintenance costs. In discussions with members of the Department of University Affairs, we understand that the \$55/n. a. s. f. will not be escalated until universities can show a detrimental effect on their academic programmes. This may be indeed impossible to prove. May we suggest that there is an optimum building cost that recognizes the value of durable materials and fittings, as well as well-designed mechanical and electrical systems developed to reduce operating costs. It should be possible for well-qualified personnel from the Department of University Affairs, working with the qualified

representatives of the universities, to carry out studies and produce a cost allowance for buildings based on all the elements it covers.

(ii) Changing Secondary School Patterns

- Do attitudes differ among faculties of the University on this matter?

There are several facets of secondary education that warrant consideration under this item of the agenda. Subject and course emphasis has changed in many areas; the disappearance of Grade XIII final examinations has posed problems in admissions and in the provision of adequate introductory courses; the high school trends to new instructional methods have had both beneficial and detrimental effects and a change in the freshman student's motivation and ability has been noted. All of these points have been raised by the different faculties of the University of Waterloo.

The changing emphasis in high school subject matter will change the demands which secondary school systems make for qualified high school teachers. Concern for "New Canadian" ethnic groups, Indians and Eskimos will involve an increasing need for secondary school teachers with Anthropological training. Experimental high school courses in Economics and Political Science are already creating a demand for teachers trained in these disciplines. The recommendations in Religious Information and Moral Development, the report of the Committee on Religious Education in the Public Schools of Ontario, if implemented, will create a demand for teachers trained in Religious Studies (World Religions) and Philosophy (Ethics). The liberalization of regulations governing Type "A" teacher certification in languages should open new options to the secondary school systems and to university students contemplating

a teaching career in languages.

The elimination of the Grade XIII "finals" has led to a diversification of standards and a decline in the quality of the average student. The very good students are better than their counterparts five or six years ago. They have initiative and a degree of independence of thought, good motivation and a more useful background. The average student, however, is worse than his predecessor of several years ago in all of these characteristics. There is a great diversity of ability and background that is not indicated in the students' various mark and grade reports because of their differing high school origins. The result is that the faculties report a need for a variety of first-year courses, often mounted at additional cost, to cope with the quite diverse aptitudes of freshman students.

The changing instructional methods of the secondary schools cannot be appraised with certainty at the present time. However, the following observations are worthy of note. The Psychology Department has indicated that high school students admitted to their discipline are capable of much more independent study than their predecessors. On the other hand, the History Department feels that the tendency of the new curriculum in secondary schools is to expose the high school student to more and more material while expecting him to make sense of less and less. The department has responded by placing more emphasis upon perception and analysis in attempts to help students appreciate the evidence and patterns of the past.

Many students themselves recognize their handicaps in reading and writing skills. In the last year or two informal writing and corrective reading labs have been launched by the University's Counselling Service to meet pressing personal limitations. The scope of this activity now involves hundreds of students. The whole process is a commentary on the present state of an old and well-known problem. Students entering university now seem less prepared in reading and writing skills than their predecessors of even five years ago. The Faculty of Mathematics would add "rithmetic" to secure the adage. In the areas of Applied Science, particularly Engineering, the willingness of students to do concentrated detailed work has declined. Similarly their motivation and initiative has decreased in the last few years. All faculties are in agreement in expressing united concern about the quality of freshman students which this University is receiving. These feelings are reflected in future planning through changes in discipline emphasis and teaching techniques.

(iii) Enrolment Intake from Other Than Secondary Schools

The University of Waterloo has always made provisions for students who do not have an Ontario Grade XIII background. Since the introduction of the Community Colleges of Applied Arts and Technology, non-Grade XIII intake has grown and now represents one-sixth of our total first-year enrolment. The community colleges have not accounted for all the growth, but they are a major factor. Some faculties have expressed concern about the growing size of the community college contingent and have indicated serious reservations about allowing them "Junior College" status. However, all faculties are admitting C. A. A. T. students in increasing numbers. Specific questions about year levels of admissions, comparability of standards and general student quality have yet to be answered in many cases.

Many departments have indicated that they would prefer to see growth in the number of mature or adult admissions. Most faculties have had excellent success with this group. They tend to bring both work experience and a more mature and disciplined attitude to their studies. Similarly, transfers from other universities account for a large number of upper-year transfers; these can usually be limited to students of proven university level ability. The number of foreign students fluctuates annually and has not been a matter of concern, either because of intake growth or decline.

The following table provides a full break-down of first-year intake on a faculty basis. The two years illustrated do not indicate trends and therefore, should be considered only as representative for the year shown.

ORIGIN OF NON-13 YEAR 1 STUDENTS
1970-71(1)

	SCIENCE	PHYS. ED.	ENG.	ENVIRON STUDIES	MATH	ARTS	TOTAL UNIVERSITY
C.A.A.T.	14	6	19	6	5	38	88
OTHER UNIVERSITIES	55	10	13	15	18	26	137
FOREIGN	26	2	5	5	15	9	62
ADULT & GRADE XI11 EQUIVALENT	38	13	41	16	49	117	274
SPECIAL (2)	5	--	--	2	2	4	13
TOTAL	138	31	78	44	89	194	574

Projected 1st. year enrolment is 3,431 - non-grade 13 students make up 16.7% of total 1st. year enrolment.

(1) Confirmation to August 12, 1970.

(2) Made up of pre-grade 13 students.

ORIGIN OF NON-13 YEAR 1 STUDENTS
1969-70(1)

	SCIENCE	PHYS. ED.	ENG.	ENVIRON. STUDIES	MATH	ARTS ⁽³⁾	TOTAL UNIVERSITY
C.A.A.T.	6	2	13	N/A	4	--	25
OTHER UNIVERSITIES	39	8	12		8	27	94
FOREIGN	17	--	5		6	--	28
ADULT & GRADE XI11 EQUIVALENT	40	11	40		29	226	346
SPECIAL (2)	6	--	--		4	7	17
TOTAL	108	21	70	N/A	51	260	510

Actual 1st. year enrolment was 3,213 - non-grade 13 students make up 15.9% of total 1st. year enrolment.

(1) Figures based on registered students Fall 1969.

(2) Made up of pre-grade 13 students.

(3) Figures based on registered students Fall 1968.

(iv) Changing Student Preference

A university must give consideration in its planning to changes in student demands. In some sectors, this is perhaps the most crucial factor in future planning. However, student demand can fluctuate radically from year to year and it is very difficult to evaluate conclusively. In addition, the University of Waterloo, in entering its fourteenth year of operation overall has considerably less than ten years of experience in some disciplines. Our ability to judge fluctuations and changes on the basis of past experience is therefore limited in one of the most important parameters. Bearing this in mind, TABLE IV does provide a rough presentation of a tendency towards the social sciences. The table does not explore the years prior to 1966-67 simply because our social sciences component was too small a cell for valid comparison. This is unfortunate because the real swing to the social sciences took place during the earlier sixties and the latter years saw only a consolidation of the shift. Nevertheless, the establishment and rapid growth of social science departments at Waterloo is probably adequate evidence.

Various departments and faculties have noted other changes during the last decade. The Science Faculty has reported a relative increase in interest in Biology, Earth Sciences and the General Science programme. Interest in Canadian history, political science and other Canadian subject matter is growing by leaps and bounds. Offerings in these fields are being multiplied, and new approaches are being developed. The Psychology, Political Science and Anthropology Departments have all underlined the tremendous increase in

courses in the social and behavioural sciences. In History, a shift in emphasis towards social and intellectual history has required the provision of special courses to fulfill the demand. Nevertheless not all students are expressing preferences or choices as positively as in the past.

In several faculties, there is serious concern about students who appear to be in their present discipline by virtue of a negative choice. Many young people are going to university as a matter of course, after high school. They often do not know specifically where their real interests lie and many choose subject areas on the basis of rather haphazard considerations. The problem associated with planning under such circumstances is that any forecasting is extremely difficult if not impossible. However, there has been a strong tendency to introduce greater flexibility of course choice in Arts, Science and Math, so that the indecisive or unknowing freshman will not be forced to commit himself as completely as in the past. These faculties have become very flexible during the last few years and an attempt is underway to provide similar options to freshman who enrol in Engineering. Although the Sciences are usually regarded as relatively structured disciplines, the Science Faculty recently introduced new options which permit all students to have a full 25% of their courses consist of free electives.

TABLE IV

TRENDS IN STUDENT PREFERENCE

(These data are derived from the annual Registrar's Report for the years indicated. Only those disciplines listed are included in the aggregate totals and percentages. The data therefore represent only a selected assortment of disciplines and do not reflect enrolment changes on a university-wide basis. Each discipline total is based upon a simple count of second, third and fourth year honours and general students.)

Discipline	1966-67		1967-68		1968-69		1969-70		Change ¹ in % Share	Change ² as % of 1966-67
	Students	%	Students	%	Students	%	Students	%		
Urban and Regional Planning	27.0	2.72	34.0	2.87	50.00	3.38	121.00	5.98	*+ 3.26	*+ 119.85
Psychology	83.5	8.42	124.0	10.46	186.50	12.61	258.00	12.74	+ 4.32	+ 51.30
Earth Sciences	13.0	1.31	19.0	1.60	29.00	1.96	38.00	1.88	+ 0.57	+ 43.51
Economics	32.0	3.22	41.5	3.50	65.00	4.39	78.50	3.88	+ 0.66	+ 20.49
Geography	61.5	6.20	100.0	8.44	115.00	7.77	139.00	6.86	+ 0.66	+ 10.65
Sociology & Anthropology	71.5	7.21	93.0	7.84	121.00	8.18	148.50	7.33	+ 0.12	+ 1.66
History	108.5	10.94	137.0	11.56	188.50	12.74	224.00	11.06	+ 0.12	+ 1.10
Political Science	37.5	3.78	53.0	4.47	55.00	3.72	75.00	3.70	** - 0.08	** - 2.12
Chemistry	128.0	12.90	113.5	9.57	141.00	9.53	255.00	12.59	- 0.31	- 2.40
Biology	75.5	7.61	84.5	7.13	88.50	5.98	138.00	6.81	- 0.80	- 10.51
French	39.5	3.98	49.0	4.13	58.50	3.95	71.50	3.53	- 0.45	- 11.31
Physics	102.0	10.28	122.0	10.29	140.50	9.50	183.50	9.06	- 1.22	- 11.87
English	138.0	13.91	154.0	12.99	188.50	12.74	215.00	10.62	- 3.29	- 23.65
Russian	4.5	0.45	7.0	0.59	7.50	0.51	7.00	0.35	- 0.10	- 22.22
Spanish	6.5	0.66	6.0	0.51	5.00	0.34	9.00	0.44	- 0.22	- 33.33
German	19.0	1.92	13.0	1.10	10.50	0.71	22.50	1.11	- 0.81	- 42.19
Philosophy	35.0	3.53	25.0	2.11	21.00	1.42	38.50	1.90	- 1.63	- 46.18
Latin	9.5	0.96	10.0	0.84	8.50	0.57	3.00	0.15	- 0.81	- 84.38
TOTALS	992.0	100.00	1,183.5	100.00	1,479.50	100.00	2,025.00	100.00	0	

¹ This index measures each discipline's trend on the basis of a simple comparison of its 1966-67 and 1969-70 percentage share of the aggregate enrolment.

² This index is obtained by calculating the increase or decrease, in each discipline's share, in 1969-70, as a percentage of its 1966-67 base.

*Plus (+) indicates a positive percentage share change.

**Minus (-) indicates a negative percentage share change.

(v) Changing Patterns of Job Opportunities

While there are a good many factors which affect the job opportunities available to university graduates they can probably be categorized into two broad classes. There are those factors which arise from fluctuations in demand for people in various segments of industry, government, and business as a result of changes in the economic climate of the nation or a particular industrial sector. These effects are usually short-term and also usually unpredictable. It is difficult to see how the University could or should respond to this type of change. As an example of this type of effect, recent changes in the policy of the United States government with regard to defence spending has caused a shortage of jobs for scientists and engineers in certain fields. Whether this situation will become a permanent one or whether it will have a transient effect on the job market, remains to be seen. It would be a mistake, in our opinion, for the University to respond to this situation by immediately curtailing its intake of students in these disciplines or revising its curriculum in the sciences and engineering to place less emphasis on the particular disciplines which are presently not in need of personnel.

On the other hand, there are factors affecting job opportunities for graduates which are a result of long-term changes in emphasis in various fields and disciplines or of the emergence of new disciplines. The University must take this type of change into consideration in its

planning and in the development of future programmes if it is to continue to meet its responsibilities to society. As an example of one such trend, experience at the University of Waterloo seems to indicate an increasing demand for students trained in the area of computer science. This experience is consistent with the general pattern. The whole area of computer science, computer technology, and the use of computers in fields of communication and data processing is one that is becoming increasingly important for the entire country.

Another general development is the increasing concern of society with problems related to the environment. The whole area of pollution, questions of urban growth and development, problems related to transportation, all fall within this broad area of concern. There is an increasing demand for people with the broad multi-disciplinary training required to tackle these problems. In response to this need, the University of Waterloo has established a Division of Environmental Studies. Not only will this Division develop its own programmes, but it will also serve as a focal point for the co-ordination of efforts of people in other faculties working in related fields.

In the field of engineering, our experience shows that while there is a continuing demand for engineers, there appears to be a pattern emerging which would indicate that engineering associated with environmental control and the health sciences will become increasingly important in the future. The Faculty of Engineering already has programmes in these

areas which will undoubtedly be strengthened and further developed if the pattern continues.

We have experienced an increase in enrolment in the social sciences, particularly in the fields of psychology, sociology and economics. This trend appears also to have been experienced by other universities and has been even more pronounced in the United States. Again, it would appear that the demand is for people in the social and behavioural sciences trained to cope with the complex problems of modern society.

At the graduate level, the most immediate and pressing problem is the job shortage for Ph. D. 's. While some of the factors contributing to this are undoubtedly transitory, there are nevertheless some long-range implications. The universities cannot continue to expand their graduate schools at the rate which has governed recent growth. Canada's position becomes even more critical when one looks at the employment pattern for Ph. D. 's. The majority of Ph. D. 's graduated from Canadian universities were, in fact, employed by other universities. Canadian business and industry have never been a large employer of people with advanced degrees. Moreover, it does not seem that this situation will change significantly in the near future. To a large extent then, the opportunities for Ph. D. graduates will depend upon the universities' own requirements for faculty. The universities must therefore gear their future expansion in the graduate area to their own expansion plans.

In summary, it is significant to note that universities cannot take action on every short-term market fluctuation, since the best planning techniques available cannot accommodate the swift reaction required. In addition, at the graduate level, particularly in Ph. D. programmes, a relatively long lead time is required to respond to market changes. The universities must however, be aware of long-range trends and developments and adjust their priorities and development plans accordingly.

- (f) University comments on possible effects of increasing demand of student assistance from the limited total resources available for the support of higher education.
- (i) How can the relative priorities be decided?

Undergraduate:

A study of the current Ontario Student Awards Programme (OSAP) and a Contingency Repayment Student Awards Programme (CORSAP), proposed in the Cook-Stager Report, has been conducted by the Senate Committee on Scholarships and Student Aid at the request of C.P.U.O. The report produced by that Committee has been approved by Senate with some amendments. It should be noted that the above report was produced for the C.P.U.O. Committee on Scholarships and Student Aid, and its recommendations are included in this brief solely for the information and convenience of the CUA.

Specific recommendations regarding both OSAP and CORSAP were made in the report. These are summarized below. Copies of the complete report are available to members of the CUA on request.

Specific Recommendations re OSAP:

The current philosophy of education financing assumes a degree of parental obligation in assisting the student to meet educational costs at the post-secondary level. While this in itself may be a questionable assumption, the following recommendations are made on the basis that parental assistance will continue to be expected.

- (1) Since Provincial grants to the University amount to approximately \$2500.00 per student year, and only the additional OSAP grant and/or loan to the student is subjected to a means test, it is suggested that the Province investigate the possibility of combining all grants to the University and OSAP awards to the student, into one single loan or grant package. This entire package would then be subjected to a means test which recognizes the cost of living of parents.
- (2) Allow a higher level of loans, based on a means test to prevent the abuses of re-investment and speculation. The loan component should be reserved to that portion of a student's income which is above minimal living costs, or to meet emergencies. If a greater dependence upon loans is desired by the Provincial authorities, such increases should occur only in the third and fourth years of an undergraduate programme, and only after the implementation of the first recommendation above.
- (3) Introduce a more realistic appraisal of the true costs of parental maintenance in assessing ability to contribute towards a child's educational costs.
- (4) Remove scholarships based on open competition from means testing. It should be assumed that scholarships are a trade-off against loans or part-time work when a student calculates his work/study strategy. Scholarships based on considerations other than open competition should be considered as income thereby reducing both loan and grant rather than just the grant, as is the case at present.

Student Loan Plans: The Dangers are Real', College Board Review, Spring, 1970, suggest that all is not well with American E. O. B. schemes. There are a number of alternatives open (several are suggested in the text) which should be considered before a major change is made. Certainly one would not like to discover five years from now, as Canadian universities discovered ten years ago, that so few graduates were being produced that non-Canadians would be a majority in certain fields of study.

- (2) Investigate the effects of higher rates of income tax returned by alumni, and calculate what additions, if any, would be necessary by alumni to repay the public investment diverted to private benefit by the student.
- (3) Investigate the public/private returns on education, and in particular include a due recognition of the social benefits of an increasingly educated populace.
- (4) Investigate alternative avenues to relieve the "negative dowry" element and consider the element of social responsibility for its existence in such calculations.
- (5) Investigate effects of various "floors" below which no contingency rate return would be demanded, and also investigate the possibility of a variable contingency rate based on income level (i. e. a person

earning \$5000.00 per year might be required to return 0.1% per thousand borrowed, while an alumnus earning \$10,000.00 per year might be required to repay 0.3% per thousand, etc.

- (6) Investigate barrier effects of loans upon lower income groups.
- (7) Investigate ways of incorporating academic merit awards into the system in order to encourage excellence. The public benefits are obviously greater from an excellent scholar than from a mediocre one.

Graduate:

At the graduate level the most important Provincial programme providing financial assistance to students is the Ontario Graduate Fellowship Programme. This programme was established to provide support for students who intended to enter careers in university teaching. It has served as an essential source of support for such graduate students in the Humanities and Social Sciences in Ontario's universities and has also served as a valuable supplementary source of support for students in the Sciences and Applied Sciences where substantial primary support is available from federal agencies, such as the National Research Council. The maintenance of this programme is essential to the healthy development of graduate work in our universities. The Committee and the Department of University Affairs should give serious consideration

to the proposal of the Ontario Council of Graduate Studies for the modification of this programme to broaden its scope. It is most important to recognize this as a distinct programme of student aid which is serving an important function in the development of Ontario's universities. We submit that this function would not be served as effectively, if served at all, in the event that the OGF programme were merged into the general pattern of student aid.

The past decade has seen an enormous expansion in the universities in the Province and indeed throughout all of Canada. It is also apparent from available forecasts that there will be continual growth over the next decade. This will lead to a continuing demand for competent faculty to staff the universities. During the past ten years, the required number of qualified faculty were simply not available from the Canadian graduate schools and Canadian universities found it necessary to look outside of Canada for qualified people to staff their growing departments. Indeed, the Canadian universities have come in for a good deal of criticism recently because they have hired so many scholars from other countries. We are confident that the future demand can be met to a large extent by our own graduates, but only if the graduate schools of our universities continue to grow in strength and continue to provide the best qualified Canadian students with an opportunity for study at the Master's and Doctoral level.

Anyone who has been associated with graduate education is only too aware that one of the major problems is the financial support for such students. It is essential that all qualified graduate students be able to count on a minimum level of support while they are pursuing their studies. In the Sciences and Applied Sciences, scholarships are available from the National Research Council and other federal sources. These funds do not cover the entire need, however, and the Ontario Graduate Fellowship Programme has provided valuable supplementary support. In the Humanities and the Social Sciences there is very little support available from federal sources at the present time and the Provincial programme has been the primary source of such support. This programme must be continued and strengthened if our graduate schools are to maintain the strong and healthy position essential for the future growth and development of our universities.

- (ii) Are current patterns of private versus public sources of support for higher education appropriate?

The University is aware that the Province is now providing about 80% of operating income and 100% of capital project income. Student fees have dropped as a contribution to operating income from 32% to 18% over the last five years. In 1964-65 when fee income provided 34% of

total income, the tuition fee rates were set to provide the necessary income to balance the following year's budget, after the Federal and Provincial grants were known. There was no philosophical basis for the fee rates at that time any more than there is now. This change in support level leads to the following question. How much does the student personally benefit after graduation from his post-secondary education, and how much does society benefit from this student's contribution after graduation, and should university funding reflect these relationships? This is a difficult question which we submit requires a great amount of study. It is a university system and society question that one university cannot answer. It is suggested that the social and economic benefits of university education to the individual and to society are studies that should be commissioned by a Provincial agency.

(g) Student Housing

- (i) What will be the University's requirements in student housing during the next five years?
- (ii) How has this need been determined?
- (iii) What will be the effects on the University's development if funds are not available to permit housing projects of the indicated scale?

This Fall, about 37% of the students can be housed in campus residences, including the student co-operatives. The number living off campus, exclusive of those living at home, is about 5,000. If no more residences are to be built before 1975 (after the Married Student Housing complex is completed), the percentage of students living on campus would drop to about 33% of the Fall enrolment and the number of students living off campus would increase to about 6,300. There are several townhouse and apartment projects under construction in the vicinity of the University and it may be reasonable to expect that additional students can be housed off campus. Whether the full 1,300 increase between now and 1975 can be so accommodated remains to be seen. It is our view, however, that we should not build any more residences until after 1972 by which time we will have experienced

the full effect of the OSHC Village II for 980 beds completed in the Fall of 1969, and the 600 Married Student Apartments which will be completed in the Summer of 1971. We had planned to add 350 beds for single students on the Renison College site for completion in 1972. This project has been delayed and probably will not be rescheduled until after the above-mentioned waiting period.

The Committee of Presidents of Universities of Ontario appointed a Sub-Committee on Student Housing which has completed a report entitled, "Student Housing in Ontario: Quo Vadis? September 1970". As this report is undoubtedly available to the members of your Committee, further comment on the points raised would be repetitious. May we emphasize one point raised in that report in the relationship between the university and the Ontario Student Housing Corporation. The introduction of a construction branch of the OSHC separates the university from the contractor and results in ownership decisions being made by OSHC, the party not responsible for the on-going operating services and, indeed, the party not responsible to pay the capital costs over the 50 years. This University has built two projects with OSHC and has experienced considerable conflict in this area of the procedure.

4. OTHER MATTERS:(a) Mission-Oriented Research

The term "mission-oriented research" is used in a very loose sense at the present time, particularly by government funding agencies. An implication exists that any research supported by a government department charged with special responsibility in a given area is "mission-oriented". In our experience, it has not been generally true in the past that funds from such agencies as the Departments of Agriculture; Energy, Mines and Resources or even from the Defence Research Board or Atomic Energy of Canada Ltd., could be classed as supporting "mission-oriented" studies. Even with the recent increasing lip service paid by Provincial and Federal agencies towards "relevance" or "mission" in research, no significant difference exists between present and past criteria and practices in the funding of University research from governmental sources.

In our view, "mission-oriented research" is research which clearly states a specific technical, economic or social problem to be solved, sets some desirable and limited time scale and has regular evaluation of progress and re-evaluation of objectives as work proceeds. The problem is specified by the sponsor and not by the research worker, and progress and accomplishment are evaluated by the sponsor. The

scope of the work is usually highly specific, and not merely oriented towards a general subject, e. g. "water pollution". The nature of the investigations usually required in true mission oriented work is such that applied scientists are the most likely to be involved.

It is our view that this kind of mission-oriented work has a definite place in the University of Waterloo. Our major strengths as a University lie in our capabilities in the applied aspects of science, that is, in Engineering, in Applied Mathematics and Computer Sciences, and in Applied Chemistry and Physics. We do not believe that the University of Waterloo should confine itself to "pure" research.

Two of the major difficulties associated with education in the applied sciences, particularly at the graduate level, are in keeping abreast with rapid technological change, and in providing real and meaningful problems for the students which are relevant to their areas. Most graduate students in applied sciences are expected to be at the University twelve months of the year, and are either not allowed to do, or are discouraged from doing, consulting work. Therefore, it is only through research involving real and relevant problems that they can gain direct professional experience. Student preferences in the applied sciences are increasingly oriented towards such real social or commercial problems. We hope and expect that increasing numbers of Bachelors graduates will return to University after some years of professional experience to study for higher degrees, and if their inclinations are to be satisfied and their experience exploited, real

problems must be available and faculty members must be competent to direct such research.

In summary, we believe that faculty members in the applied sciences owe it to their own professional development, to their undergraduate and graduate students, and to the society which supports them, to become involved in the solution of real and specific problems.

There are many ways of developing University involvement with real problems, and the encouragement of mission-oriented research is one of the most important. At Waterloo, contract research is allowed and encouraged, with due regard for the necessity for open publication if the work is used as a basis for a graduate thesis. Because we are a young University, we have developed as yet only a minor fraction of our total research effort in the mission-oriented areas. In past years such projects were undertaken and pursued by individuals with little positive participation by the University. In recent years, contracts have been reviewed on behalf of the University by its Office of Research Administration. Increasingly, the advice and frequently the administrative management of the Industrial Research Institute have been used by faculty members, who are often not familiar with legal contractual arrangements. It should be understood that the Waterloo Industrial Research Institute is an information, administrative and liaison organization which has no research staff of its own and which makes use of the wide spectrum of expertise available in this University, in order

to promote mission-oriented research. Its operation is increasingly successful, and faculty members who have participated in contract research projects are strong in their opinion that such contract research has been of real educational and professional value to them.

It is difficult to give exact statistics on the amount of mission-oriented research performed by this University, because of the problems of identifying those projects meeting a realistic definition. However, a large proportion of such work, and nearly all that supported by industrial contracts, is carried out by members of the Faculty of Engineering. If all funds coming to the Engineering Faculty having some degree of mission orientation are taken together (that is, excluding NRC, DRB and DUA grants), then in past years these have amounted to about 24% of the total external support for engineering research. Of this "mission-oriented" sum, about 74% came from government agencies or private foundations, and the balance (about 5% of the total research grants in the Faculty) which represents more accurately the amount of real "mission-oriented" funding, came from industry.

In 1970-71, a new and significant pattern of research support is emerging in the Faculty of Engineering. Industrial funding of active contract research will nearly equal in this year the cumulative total of all previous years. In addition, contracts involving approximately an equal amount are under negotiation. The proportion of total external funding of engineering research provided by industry will rise from

the historical 5% to about 17%, nearly all of which is being handled through the Industrial Research Institute. The total support for research that can be called reasonably mission-oriented (i. e. exclusive of NRC, DRB and DUA) will be 45% of the total external grants, and government and private agencies will be contributing only 63% of this sum. Of the funds for research in definite areas supplied by government or private agencies, about 38% are handled under the Industrial Research Institute.

In the period 1970-75, it is anticipated that support for research which has some degree of "mission orientation" will increase -- not only in Engineering but in all of the applied sciences at the University of Waterloo--at a faster rate than will support for traditional curiosity-directed or "pure" research. Industrial support will show the greatest growth rate, and in this respect the role of the Waterloo Industrial Research Institute must be recognized. We view this trend with considerable satisfaction, and regard it as being highly desirable for healthy development of our strength in the applied sciences.

(b) Outline of the University's policy on the obligations of individual faculty members:

There are various types of academic appointments within the University of Waterloo. Each appointment category is based upon the "standard" Canadian practice of academic appointments carrying certain explicit responsibilities and commitments with certain other implicit responsibilities not formally committed. Every appointment carries with it a direct explicit commitment for two terms or eight months (approximately) of lecturing, scholarly work, academic supervision of students, setting and marking of examinations and general participation in University affairs through the work of councils, committees, etc. While there is no direct specific obligation for the remainder of the year, it is understood that faculty will pursue activities of a scholarly or professionally developing character through travel, research, writing, studying, etc. In addition, many faculty members are engaged in graduate student supervision. This is a voluntarily accepted obligation which involves a definite year-round commitment. Further, there is an implicit undertaking of responsibility by all faculty members to the University at all times. It is generally accepted that faculty promotions to higher academic ranks are significantly influenced by their activities throughout the calendar year.

Most faculty appointments carry teaching responsibilities in the Fall and Winter terms only; however, for co-operative programmes there is a significant amount of instruction given during the Spring term. Thus, it is possible for faculty members engaged in teaching undergraduates in co-operative programmes, to teach on occasion and whenever necessary, during any two of the three terms in any year. A decided benefit of the co-operative programme is the possibility of combining in a two-year period, four terms of regular service and two consecutive "uncommitted" terms. However, arrangements such as this are at all times dependent upon the department's ability to fulfill its teaching and other responsibilities. In addition, the professor must make satisfactory arrangements with any graduate students who may be under his supervision.

(c) Report on the position of Church-Related Colleges at the University of Waterloo:

This report was prepared by representatives of the federated and affiliated Church Colleges and is included as an Appendix to this brief.

SEE APPENDIX J.

(d) Spring Admissions for Grade XIII Students

The University of Waterloo would like to give consideration to the admission of Grade XIII students from Ontario secondary schools, into the freshman year of co-operative programmes, at the beginning of the Spring or May term. At present, all of these students are enrolled at the beginning of the Fall or September term. This change can only be implemented if full grants are made available. We would like DUA to negotiate with the Department of Education to accomplish spring admissions into co-operative programmes, and to resolve the question of Grade XIII status for students who leave high school at the end of April.

Several distinct advantages would accrue to the University if Spring admissions can be recognized. A sizable May intake of freshman students would allow a more uniform calendar year enrolment. In spite of the substantial Spring and Summer term enrolments made possible by our co-operative programmes and summer school offerings, the Fall term still accommodates a considerably higher number of students. The utilization of physical facilities, if spring admissions are approved, would be more evenly distributed on a year-round basis, and would permit the University to accommodate a larger total enrolment with the same physical plant.

APPENDIX A

Waterloo Lutheran University and University of Waterloo

AGREEMENT

THIS AGREEMENT made in triplicate the 16th day of June,
A. D. 1970.

BETWEEN:

THE UNIVERSITY OF WATERLOO,

on behalf of itself and on behalf of its federated and affiliated
Universities and Colleges,

hereinafter called the Party of the FIRST PART

- AND -

WATERLOO LUTHERAN UNIVERSITY,

hereinafter called the Party of the SECOND PART.

WHEREAS The University of Waterloo and its federated and
affiliated universities and colleges on the one hand and Waterloo Lutheran
University on the other hand desire to develop and maintain in mutual
co-operation, at Waterloo, Ontario, a center of undergraduate and graduate
education,

AND WHEREAS for the purpose aforesaid the Parties desire to
establish a joint exploratory body to examine the scope and potential of such
co-operative development and recommend methods of practical implementation
such as possible sharing of physical facilities, pooling of information and
educational advantages, co-ordination of library services, exchange of faculty
and cross-registration of students.

such other functions as may be referred to the Council from time to time;

- (c) to suggest to either of the universities, or both, methods for assuming special responsibilities on behalf of the universities;
- (d) to review periodically new programs planned by either of the universities, or both;
- (e) to consider and recommend measures to further the intent of this Agreement, and;
- (f) to establish sub-committees to study the problems in all or any of the above-referenced areas and to make recommendations to the Council with respect thereto.

3. During the term of this interim Agreement, efforts will be made by The University of Waterloo and by Waterloo Lutheran University to develop mutually acceptable general academic standards for admission in order to encourage the development of joint programs and cross-registration of the students; provided that each university shall function independently in admitting students to its own programs.

4. During the currency of this interim Agreement and subject to any modifications subsequently mutually agreed upon between the Parties, it is agreed that The University of Waterloo on one hand and Waterloo Lutheran University on the other hand shall continue to exist under their respective separate names and constitutions and maintain their own separate internal operations.

5. At the outset of this Agreement and subject to any modifications which may be subsequently agreed upon, it is understood that each university shall set its own requirements for graduation, it being agreed that a student of

NOW THEREFORE THIS AGREEMENT WITNESSETH that in consideration of the recitals it is agreed between the Parties as follows:

1. For the purpose hereinbefore recited the Parties shall forthwith establish a joint Co-operative Advisory Council (hereinafter called the "Council") to be composed of an equal number of members from each of the two Parties but in all events including the President of The University of Waterloo, the President of Waterloo Lutheran University and the President of the University of St. Jerome's College (the latter as a representative of the federated and affiliated universities and colleges of The University of Waterloo). Subject to the foregoing Presidential representation, the Council shall be jointly appointed by the Presidents of The University of Waterloo and Waterloo Lutheran University. The Council will be established on an interim basis for a period of two years to be chaired during the first year of the said period by the President of Waterloo Lutheran University (or his designate) and during the second year by the President of The University of Waterloo (or his designate). During the term of this interim Agreement the Council shall report from time to time to the appropriate governing bodies of the universities and colleges involved through the Chairman of the Council.

2. For the term of this Agreement the Council shall have power:

(a) to study the curricula and academic staffs of the universities for the purpose of making recommendations for facilitating closer co-operation and more effective exchange of teaching services between the universities;

(b) to suggest improvements in the co-ordination of functions, such as admission, registration, public events, publicity and

either university, upon compliance with the said graduation requirements, shall graduate from the university in which he or she is registered.

6. This Agreement shall be subject to any necessary ratification and approval by the respective governing bodies of The University of Waterloo and of Waterloo Lutheran University.

IN WITNESS WHEREOF the universities have hereunto affixed their corporate seals attested by the hands of their proper officers duly authorized in that behalf.

THE UNIVERSITY OF WATERLOO

WATERLOO LUTHERAN UNIVERSITY

C. A. Pollock
Chairman, Board of Governors

Harry Greb
Chairman, Board of Governors

H. E. Petch
President (pro tem)

Frank C. Peters
President

APPENDIX B

Graduate Enrolment Data

CUA Forms A, B, C, D and E

GRADUATE ENROLMENT DATA

Form CUA-70-A

DISTRIBUTION OF GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP

	Canadian Landed Immigrant					Foreign							Subtotal	TOTAL
	69-70	70-71	69-70	70-71	69-70	70-71	69-70	70-71	69-70	70-71	69-70	70-71		
	69-70	70-71	69-70	70-71	69-70	70-71	69-70	70-71	69-70	70-71	69-70	70-71	69-70	70-71
	United States	United Kingdom	Europe	Asia	Africa	Other								

AGGREGATE FIGURES

Full-Time: - Master's	453	486	154	156	7	8	8	10	12	13	80	74	21	20	4	10	132	135	739	777
- Doctoral	242	267	185	185	29	29	2	2	9	9	76	72	16	16	3	3	135	131	562	583
- Total	695	753	339	341	36	37	10	12	21	22	156	146	37	36	7	13	267	266	1301	1360
Part-Time: - Master's	126	92	30	26															156	118
- Doctoral	32	41	11	12	7	8	1	1			4	4	1	1			13	14	56	67
- Total	158	133	41	38	7	8	1	1			4	4	1	1			13	14	212	185

BREAKDOWN BY DISCIPLINE AREA

HUMANITIES (Lang. & Lit.)

Full-Time: - Master's	57	53	20	19	1	1	1	1	1	1	1	1	1	1	1	1	4	4	81	76
- Doctoral	16	12	9	7														1	25	20
- Total	73	66	29	26	1	2			1	1	1	1	1	1	1		4	5	106	96
Part-Time: - Master's	9	8	2	2															11	10
- Doctoral	3	4																	3	4
- Total	12	12	2	2															14	14

HUMANITIES (History, etc.)

Full-Time: - Master's	41	44	9	10	1	1					3	1	2	2	2	6	52	60		
- Doctoral	25	25	17	17	4	4					1	1				5	47	47		
- Total	66	69	26	27	5	5					1	4	1	2	7	11	99	107		
Part-Time: - Master's	21	12	2	1													23	13		
- Doctoral	4	4	2	2							1	1				1	7	7		
- Total	25	16	4	3							1	1				1	30	20		

SOCIAL SCIENCES (General)

Full-Time: - Master's	71	67	6	5	1	1		1								1	2	78	74	
- Doctoral	43	42	32	30	13	11					2	2	2	2	2	17	15	92	87	
- Total	114	109	38	35	14	12		1			2	2	2	2	2	18	17	170	161	

	Canadian	Landed Immigrant	United States 1970-71	United Kingdom 1970-71	Europe 1970-71	Foreign	Subtotal	Total
	1970-71	1970-71			1970-71	1970-71	1970-71	1970-71
SOCIAL SCIENCES (General) (continued)								
Part-Time: - Master's								
- Doctoral								
- Total								
SOCIAL SCIENCES (Regional, etc.)								
Full-Time: - Master's	17	3	1	1		2		24
- Doctoral	3							3
- Total	20	3	1	1		2		27
Part-Time: - Master's								
- Doctoral								
- Total								
PHYSICAL SCIENCES								
Full-Time: - Master's	22	4				3		29
- Doctoral	9							9
- Total	31	4				3		38
Part-Time: - Master's	1							1
- Doctoral								
- Total	1							1
MATHEMATICAL SCIENCES								
Full-Time: - Master's	94	11	1		1	8	5	120
- Doctoral	29	2		1		1	1	34
- Total	123	13	1	1	1	9	6	154
Part-Time: - Master's	1							1
- Doctoral								
- Total	1							1
ENGINEERING								
Full-Time: - Master's	64	1				2	3	76
- Doctoral	8	1	1	1		4	5	14
- Total	72	2	1	1		6	8	90
Part-Time: - Master's	1							1
- Doctoral								
- Total	1							1

Canadian Landed Immigrant	Foreign				Subtotal	
	United States	United Kingdom	Europe	Asia	Africa	Other
1969-70 70-71	69-70 70-71	69-70 70-71	69-70 70-71	69-70 70-71	69-70 70-71	69-70 70-71
1969-70 70-71	69-70 70-71	69-70 70-71	69-70 70-71	69-70 70-71	69-70 70-71	69-70 70-71

OTHER

Full-Time: - Master's
- Doctoral
- Total

Part-Time: - Master's
- Doctoral
- Total

1. Do not include "qualifying year" students (as this term is defined in the Report on the Counting of Graduate Students).
2. Enrolment basis: Student numbers enrolled: "as at" December 1st of each year.
3. Enrolment reported for 1970-71 to be the latest estimates available of 1970-71 actuals. An updated report incorporating December 1st actuals is required no later than January 1st, 1971.
4. Discipline areas are as defined in "Survey of Citizenship of Graduate Students Enrolled in Master's and Doctoral Degree Programmes at Ontario Universities in 1969-70 ----" (C.P.U.O., Research Division, May 11, 1970).

GRADUATE ENROLMENT DATA
DISTRIBUTION OF NEW REGISTERED GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP

	Canadian 1970-71	Landed Immigrant 1970-71	Foreign					Subtotal	Total
			United States 1970-71	United Kingdom 1970-71	Europe 1970-71	Asia 1970-71	Africa 1970-71	Other 1970-71	
Full-Time: - Master's	352	22	2	6	1	18	6	10	417
- Doctoral	97	6	2	1		6		1	113
- Total	449	28	4	7	1	24	6	11	530
Part-Time: - Master's	9								9
- Doctoral									
- Total	9								9

BREAKDOWN BY DISCIPLINE AREA

HUMANITIES (Language & Literature)

Full-Time: - Master's	41	1							42
- Doctoral	6		1					1	7
- Total	47	1	1					1	49
Part-Time: - Master's	2								2
- Doctoral									
- Total	2								2

HUMANITIES (History, etc.)

Full-Time: - Master's	68	2				3	2	5	75
- Doctoral	11								11
- Total	79	2				3	2	5	86
Part-Time: - Master's	4								4
- Doctoral									
- Total	4								4

SOCIAL SCIENCES (General)

Full-Time: - Master's	41			1				1	42
- Doctoral	28	2						1	31
- Total	69	2		1				2	73

	Canadian	Landed Immigrant	Foreign							Subtotal	Total
			United States	United Kingdom	Europe	Asia	Africa	Other			
	69-70	70-71	69-70	70-71	69-70	70-71	69-70	70-71	69-70	70-71	69-70 70-71
SOCIAL SCIENCES (General) (continued)											
Part-Time: - Master's	10	9	2	2							
- Doctoral	5	6	1	2	6	7					
- Total	15	15	3	4	6	7					
(SOCIAL SCIENCES (Regional, etc.))											
Full-Time: - Master's	41	43	7	7	1	1	1				
- Doctoral	8	8	2	2			2				
- Total	49	51	9	9	1	1	3				
Part-Time: - Master's	10	6	2	2							
- Doctoral	3	3									
- Total	13	9	2	2							
PHYSICAL SCIENCES											
Full-Time: - Master's	39	53	27	30	2	2	4	4			
- Doctoral	25	27	31	31	1	1	14	14			
- Total	64	80	58	61	2	2	29	29			
Part-Time: - Master's	2	2	3	2							
- Doctoral	4	5	2	2			1	1			
- Total	6	7	5	4			1	1			
MATHEMATICAL SCIENCES											
Full-Time: - Master's	84	106	15	15			1	15	10		
- Doctoral	47	67	21	23	8	8	2	13	12		
- Total	131	173	36	38	9	9	2	28	22		
Part-Time: - Master's	13	9	1	1							
- Doctoral	1	6									
- Total	14	15	1	1							
ENGINEERING											
Full-Time: - Master's	103	103	61	61	1	1	2	2	40		
- Doctoral	72	80	67	69	2	3	3	35	8		
- Total	175	183	128	130	3	4	2	75	20		
Part-Time: - Master's	60	45	17	15							
- Doctoral	11	12	4	4	1	1	2	2	1		
- Total	71	57	21	19	1	1	2	2	1		

	Canadian		Landed Immigrant		Foreign					Subtotal		Pg. 3 Total
	1969-70	70-71	69-70	70-71	United States 69-70 70-71	United Kingdom 69-70 70-71	Europe 69-70 70-71	Asia 69-70 70-71	Africa 69-70 70-71	Other 69-70 70-71	Foreign 69-70 70-71	

1969-70 70-71 69-70 70-71 69-70 70-71 69-70 70-71 69-70 70-71 69-70 70-71 69-70 70-71

LIFE SCIENCES

Full-Time: - Master's	17	17	9	9		1	2	4	3	3	8	34
- Doctoral	6	6	6	6	2	2		8	1	1	11	23
- Total	23	23	15	15	2	2	2	12	4	4	19	57
Part-Time: - Master's	1	1	1	1								
- Doctoral	1	1	2	2				1			1	2
- Total	2	2	3	3				1			1	6

HEALTH SCIENCES

Full-Time: - Master's												
- Doctoral												
- Total												
Part-Time: - Master's												
- Doctoral												
- Total												

EDUCATION

Full-Time: - Master's												
- Doctoral												
- Total												
Part-Time: - Master's												
- Doctoral												
- Total												

BUSINESS

Full-Time: - Master's												
- Doctoral												
- Total												
Part-Time: - Master's												
- Doctoral												
- Total												

Canadian	Landed Immigrant	Foreign					Subtotal		Total
		United States 1970-71	United Kingdom 1970-71	Europe 1970-71	Asia 1970-71	Africa 1970-71	Other 1970-71	Foreign 1970-71	
1970-71	1970-71								1970-71

OTHER

Full-Time: - Master's
 - Doctoral
 - Total

Part-Time: - Master's
 - Doctoral
 - Total

GRADUATE ENROLLMENT DATA
GRADUATE DEGREES AWARDED/TO BE AWARDED BY
DISCIPLINE AREA

Form CUA-70-C

1964-65		1965-66		1966-67		1967-68		1968-69		1969-70		1970-71		1971-72		1972-73		1973-74		1974-75		1975-76	
Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated	Actual	Estimated

AGGREGATE FIGURES

57	120	171	234	248	355	333	344	367	382	400	414
3	15	23	45	55	88	105	108	112	110	108	111

BREAKDOWN BY DISCIPLINE AREA

HUMANITIES (Language & Literature)

2	5	11	14	22	35	29	32	34	35	37	36
				1	3	8	9	4	3	4	4

HUMANITIES (History, etc.)

1	9	9	27	10	25	24	27	29	31	33	35
				1	14	14	14	14	10	6	6

SOCIAL SCIENCES (General)

5	10	6	22	22	39	28	35	40	47	51	54
	4	4	13	10	8	10	14	17	19	22	25

SOCIAL SCIENCES (Regional, etc.)

		2	1	10	9	13	14	20	21	21	21
					1	5	5	4	3	3	4

PHYSICAL SCIENCES

5	9	24	24	29	28	39	36	39	41	44	47
	2		11	6	18	12	13	14	15	15	15

MATHEMATICAL SCIENCES

16	42	35	43	46	83	74	80	90	96	103	109
1	4	1	4	6	5	13	15	20	21	21	22

1964-64		1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
Actual		Actual	Actual	Actual	Actual	Actual	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated
<u>ENGINEERING</u>												
Master's												
Doctoral		24	44	80	99	103	125	117	112	106	102	102
		2	5	16	14	28	28	33	33	34	31	29
<u>LIFE SCIENCES</u>												
Master's												
Doctoral		4	1	4	4	6	11	9	8	9	9	10
				2	3	3	11	10	5	5	6	6
<u>HEALTH SCIENCES</u>												
Master's												
Doctoral												
<u>EDUCATION</u>												
Master's												
Doctoral												
<u>BUSINESS</u>												
Master's												
Doctoral												
<u>OTHER</u>												
Master's												
Doctoral												

Notes: (1) Discipline areas are as defined in "Survey of Citizenship of Graduate Students Enrolled in Master's and Doctoral Degree Programmes at Ontario Universities in 1969-70 ----" (C.P.U.O. Research Division, May 11, 1970).

GRADUATE ENROLMENT DATA
PROJECTED GRADUATE ENROLMENT (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
--	---------	---------	---------	---------	---------	---------

AGGREGATE FIGURES

Full-Time: - Master's	777	799	842	882	920	950
	583	594	608	629	653	666
	1360	1393	1450	1511	1574	1616
Part-Time: - Master's	118	132	139	145	150	156
	67	73	83	90	98	103
	185	205	222	235	248	259

BREAKDOWN BY DISCIPLINE AREAHUMANITIES (Language & Literature)

Full-Time: - Master's	76	81	85	88	91	89
	20	20	20	20	20	20
	96	101	105	108	111	109
Part-Time: - Master's	10	15	17	19	20	21
	4	5	6	7	7	7
	14	20	23	26	27	28

HUMANITIES (History, etc.)

Full-Time: - Master's	60	66	73	79	85	91
	47	47	47	47	47	47
	107	113	120	126	132	138
Part-Time: - Master's	13	14	14	14	15	16
	7	7	7	7	7	7
	20	21	21	21	22	23

SOCIAL SCIENCES (General)

Full-Time: - Master's	74	92	106	125	135	142
	87	100	116	132	142	149
	161	192	222	257	277	291

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
<u>SOCIAL SCIENCES (General) (continued)</u>						
Part-Time: - Master's	11	14	15	18	18	20
- Doctoral	15	19	25	30	36	38
- Total	26	33	40	48	54	58
<u>SOCIAL SCIENCES (Regional, etc.)</u>						
Full-Time: - Master's	55	60	67	72	72	72
- Doctoral	12	14	15	16	19	20
- Total	67	74	82	88	91	92
Part-Time: - Master's	8	10	12	12	12	12
- Doctoral	3	2	2	2	2	2
- Total	11	12	14	14	14	14
<u>PHYSICAL SCIENCES</u>						
Full-Time: - Master's	106	102	108	112	120	128
- Doctoral	74	76	79	84	88	87
- Total	180	178	187	196	208	215
Part-Time: - Master's	4	5	4	5	5	5
- Doctoral	8	8	9	8	9	10
- Total	12	13	13	13	14	15
<u>MATHEMATICAL SCIENCES</u>						
Full-Time: - Master's	138	147	162	174	184	194
- Doctoral	120	121	122	126	132	138
- Total	258	268	284	300	316	332
Part-Time: - Master's	10	12	17	19	22	24
- Doctoral	6	8	11	13	14	16
- Total	16	20	28	32	36	40
<u>ENGINEERING</u>						
Full-Time: - Master's	234	221	209	199	199	199
- Doctoral	200	192	184	178	178	178
- Total	434	413	393	377	377	377

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
<u>ENGINEERING (continued)</u>						
Part-Time: - Master's	60	60	57	55	55	55
- Doctoral	20	19	18	17	17	17
- Total	80	79	75	72	72	72
<u>LIFE SCIENCES</u>						
Full-Time: - Master's	34	30	32	33	34	35
- Doctoral	23	24	25	26	27	27
- Total	57	54	57	59	61	62
Part-Time: - Master's	2	2	3	3	3	3
- Doctoral	4	5	5	6	6	6
- Total	6	7	8	9	9	9
<u>HEALTH SCIENCES</u>						
Full-Time: - Master's						
- Doctoral						
- Total						
Part-Time: - Master's						
- Doctoral						
- Total						
<u>EDUCATION</u>						
Full-Time: - Master's						
- Doctoral						
- Total						
Part-Time: - Master's						
- Doctoral						
- Total						
<u>BUSINESS</u>						
Full-Time: - Master's						
- Doctoral						
- Total						

1970-71 1971-72 1972-73 1973-74 1974-75 1975-76

BUSINESS (continued)

Part-Time: - Master's
- Doctoral
- Total

OTHER

Full-Time: - Master's
- Doctoral
- Total

Part-Time: - Master's
- Doctoral
- Total

GRADUATE ENROLMENT DATA
SURVEY OF ANNUAL FINANCIAL RESOURCES FOR THE
SUPPORT OF FULL-TIME GRADUATE STUDENTS, 1969-70 ACTUAL

Instructions: Indicate the number of students receiving any support.
(double-counting is anticipated).

Discipline Area	Scholarships and Bursaries		Research Grants		Remuneration		P.O.S.A.P.	Not Supported under Any of Categories 1-7
	P.O.G. (1)	Other (2)	Federal Agencies (3)	Other (4)	Teaching Assistantships (5)	Other University (6)	(7)	(8)
AGGREGATE FIGURES								
Full-Time: - Master's	162	56	305	71	494	208	55	95
- Doctoral	153	92	286	67	449	208	18	58
- Total	315	148	591	138	943	416	73	153
BREAKDOWN BY DISCIPLINE AREA								
HUMANITIES (Languages & Literature)								
Full-Time: - Master's	31				57	11	5	6
- Doctoral	17		1		22	6	4	3
- Total	48		1		79	17	9	9
HUMANITIES (History, etc.)								
Full-Time: - Master's	32				30	3	8	7
- Doctoral	27		2		41	9	2	4
- Total	59		2		71	12	10	11
SOCIAL SCIENCES (General)								
Full-Time: - Master's	18	1	2	2	25	11	9	18
- Doctoral	59	11	36	19	75	33	5	13
- Total	77	18	38	21	100	44	14	31

Discipline Area	Scholarships and Bursaries		Research Grants		Remuneration		P.O.S.A.P.	Not Supported Under Any of Categories 1-7
	P.O.G.	Other	Federal Agencies	Other	Teaching Assistantships	Other University		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>SOCIAL SCIENCES (Regional, etc.)</u>								
Full-Time: - Master's	22		2	9	31	11	4	14
- Doctoral	2			2	7	2		5
- Total	24		2	11	38	13	4	19
<u>PHYSICAL SCIENCES</u>								
Full-Time: - Master's	14	8	70	13	82	43	4	7
- Doctoral	19	11	54	5	67	34		5
- Total	33	19	124	18	149	77	4	12
<u>MATHEMATICAL SCIENCES</u>								
Full-Time: - Master's	20	19	48	6	81	34	13	14
- Doctoral	16	31	48	13	71	47	1	9
- Total	36	50	96	19	152	81	14	23
<u>ENGINEERING</u>								
Full-Time: - Master's	15	23	158	34	158	80	11	28
- Doctoral	11	36	131	25	147	67	6	18
- Total	26	59	289	59	305	147	17	46
<u>LIFE SCIENCES</u>								
Full-Time: - Master's	10	5	25	7	30	15	1	1
- Doctoral	2	3	14	3	19	10		1
- Total	12	8	39	10	49	25	1	2
<u>HEALTH SCIENCES</u>								
Full-Time: - Master's								
- Doctoral								
- Total								

Discipline Areas	Scholarships and Bursaries		Research Grants		Remuneration		P.O.S.A.P.	Not Supported Under Any of Categories 1-7
	P.O.G.	Other	Federal Agencies	Other	Teaching Assistantships	Other		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Discipline Areas

EDUCATION

Full-Time: - Master's
- Doctoral
- Total

BUSINESS

Full-Time: - Master's
- Doctoral
- Total

OTHER

Full-Time: - Master's
- Doctoral
- Total

GRADUATE ENROLLMENT DATA
SURVEY OF ANNUAL FINANCIAL RESOURCES FOR THE
SUPPORT OF FULL-TIME GRADUATE STUDENTS 1969-70 ACTUAL

DISCIPLINE AREA	NUMBER OF STUDENTS BY LEVEL OF SUPPORT							
	NONE	\$1-500	\$501-1,000	\$1,001-2,000	\$2,001-3,000	\$3,001-4,000	\$4,001-5,000	\$5,001+ TOTAL
AGGREGATE FIGURES								
Full-Time: - Master's	99	19	37	85	131	218	106	44 739
- Doctoral	58	8	14	35	68	158	149	72 562
- Total	157	27	51	120	199	376	255	116 1301
BREAKDOWN BY DISCIPLINE AREA								
HUMANITIES (Language & Literature)								
Full-Time: - Master's	10	6	2	22	15	19	6	1 81
- Doctoral	3	1	1	1	6	11	2	25
- Total	13	7	3	23	21	30	8	1 106
HUMANITIES (History, etc.)								
Full-Time: - Master's	7	1		14	13	12	5	52
- Doctoral	4		4	10	7	19	3	47
- Total	11	1	4	24	20	31	8	99
SOCIAL SCIENCES (General)								
Full-Time: - Master's	18	2	11	8	19	12	6	2 78
- Doctoral	13	3		7	18	26	21	4 92
- Total	31	5	11	15	37	38	27	6 170
SOCIAL SCIENCES (Regional)								
Full-Time: - Master's	14		2	6	7	16	4	1 50
- Doctoral	5			2	2		3	12
- Total	19		2	8	9	16	7	1 62

NUMBER OF STUDENTS BY LEVEL OF SUPPORT

DISCIPLINE AREA	NONE	\$1-500	\$501-1,000	\$1,001-2,000	\$2,001-3,000	\$3,001-4,000	\$4,001-5,000	\$5,001+	TOTAL
<u>PHYSICAL SCIENCES</u>									
Full-Time: - Master's	7	1	1	3	15	50	10	2	89
- Doctoral	5	1	2	3	4	27	26	5	72
- Total	12	2	2	6	19	77	36	7	161
<u>MATHEMATICAL SCIENCES</u>									
Full-Time: - Master's	14	3	9	11	20	26	22	16	121
- Doctoral	9	3	4	6	9	27	25	19	99
- Total	23	3	13	17	29	53	47	35	220
<u>ENGINEERING</u>									
Full-Time: - Master's	28	4	10	18	39	70	45	20	234
- Doctoral	18	3	2	5	17	41	63	43	192
- Total	46	7	12	23	56	111	108	63	426
<u>LIFE SCIENCES</u>									
Full-Time: - Master's	1	2	2	3	3	13	8	2	34
- Doctoral	1	1	2	1	5	7	6	1	23
- Total	2	2	4	4	8	20	14	3	57
<u>HEALTH SCIENCES</u>									
Full-Time: - Master's									
- Doctoral									
- Total									
<u>EDUCATION</u>									
Full-Time: - Master's									
- Doctoral									
- Total									
<u>BUSINESS</u>									
Full-Time: - Master's									
- Doctoral									
- Total									

NUMBER OF STUDENTS BY LEVEL OF SUPPORT

DISCIPLINE AREA	NONE	\$1-500	\$501-1,000	\$1,001-2,000	\$2,001-3,000	\$3,001-4,000	\$4,001-5,000	\$5,001+	TOTAL
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OTHER

Full-Time: - Master's
- Doctoral
- Total

- Notes: 1. Do not include "qualifying year" students (as this term is defined in the Report on the Counting of Graduate Students).
2. Enrolment basis: Student numbers enrolled: "as at" December 1st each year.
3. Discipline areas are as defined in "Survey of Citizenship of Graduate Students Enrolled In Master's and Doctoral Degree Programmes at Ontario Universities in 1969-70 ---- "(C.P.U.O. Research Division, May 11, 1970).
4. Support levels should be reported on an annual basis, i.e. in relation to an entire academic year of the program for which a student is registered.
5. Total students reported should be identical with those reported on Form CUA-70-A.

APPENDIX C

HEALTH SCIENCE - SCHOOL OF OPTOMETRY PROJECTIONS

CUA Forms F and G

HEALTH SCIENCES PROGRAMS
LONG-TERM ENROLMENT DATA
TO 1975-76

114 C1
Form CUA-70-F

Health Sciences Program Reported OPTOMETRY

Instructions:

1. Programs of study in the Health Sciences, are listed below:

	<u>Undergraduate</u>	<u>Graduate</u>
Dentistry	*	*
Hygiene and Public Health	*	*
Medicine	*	*
Physio and Occupational Therapy	*	*
Dental Hygiene	*	
Dip. Public Health Nursing	*	
Medical Interns	*	
Medical Residents	*	
Nursing	*	*
Pharmacy	*	*
Hospital Administration		*
Optometry	*	

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D.U.A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st University year subsequent to Grade 13 into undergraduate degree programs only.

<u>1970-71</u> (Estimate)	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>	<u>1974-75</u>	<u>1975-76</u>
(i) Full-Time "Freshman Intake" (i.e. 1st Year Undergraduate Degree)					
<u>45</u>	<u>50</u>	<u>55</u>	<u>60</u>	<u>60</u>	<u>60</u>
(ii) Total Full-Time Undergraduate (including diploma and other non-degree and make-up or qualifying year)					
<u>186</u>	<u>240</u>	<u>270</u>	<u>280</u>	<u>280</u>	<u>280</u>
(iii) Total Graduate (Fall-Term)					
<u>0</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>15</u>	<u>15</u>
(iv) Total Full-Time Enrolment (ii plus iii)					
<u>186</u>	<u>245</u>	<u>280</u>	<u>290</u>	<u>295</u>	<u>295</u>
(v) F.T.E. of Part-Time Enrolment using Formula Conversion Factors (including "Summer School" Graduate Students)					
<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
(vi) F.T.E. Enrolment (iv plus v)					
<u>186</u>	<u>245</u>	<u>280</u>	<u>290</u>	<u>295</u>	<u>295</u>
(vii) Total Basic Income Units Under Formula (i.e. Total Weighted Enrolment)					
<u>327</u>	<u>450</u>	<u>525</u>	<u>540</u>	<u>560</u>	<u>560</u>

Explanatory Comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969 (Please deal with both the quantitative parameters of these variations and the reasons for them):

Enrolment in the Optometry programme has increased much faster than anticipated both in Year I and in Year II (the first professional year) where students can transfer in from other universities. The figures submitted in the Fall of 1969 reflected this growth for 1969-70 and 1970-71 but had not been revised beyond 1971. The new 1971-1976 figures are based on this increase and are a more accurate estimate. The revised figures are those on which plans for the new Optometry building are based and provide for a graduating class of 50 optometrists. This number will not even meet the needs of Ontario in the future nor will it satisfy the interest and demand for qualified applicants. These projected enrolments could, therefore, be increased substantially in the future if the Government of Ontario and the University agreed such expansion was desirable.

NOTES for Form CUA-70-F - OPTOMETRY, University of Waterloo

1. The Graduate student enrolment projections are based on an assumption of approval of a M.Sc. programme starting in 1971-72.
2. Basic Income Units calculated assuming these weighting factors for Optometry students.

Year I = 1.0 (same as for Regular Science).

Year II to IV (the professional programme) = 2.0.

Year I of 1-yr M.Sc. = 4.0 (assuming 3 terms @ 1 1/3 per term).

INSTITUTION: University of Waterloo

FINANCING OF HEALTH SCIENCES PROGRAMS

FORM CUA-70-G

☒ Program: Optometry

☐ Teaching service re students not enrolled in Health Sciences programs (net)

☐ Not assignable to a program

☐ Consolidation of Health Sciences revenues and expenditures

Assumed basic income unit value
Full-time equivalent students} only 4 professional years
Basic income units} not first year General Science
Note - BIU value of 3 assumed from 1971-72

	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
\$1,550		\$1,650	\$1,730	\$1,730	\$1,730	\$1,730	\$1,730
125		141	190	220	220	220	220
250		282	570	660	660	660	660

REVENUE

1. Basic operating income (Operating Grants Formula)
2. Support received from O.H.S.C.
3. Other Provincial operating grants
4. Assisted/sponsored research funds
5. Trust and endowment funds
6. Fees for physicians' services
7. All other revenue (itemize by category)

	\$	\$	\$	\$	\$	\$	\$
387,500	465,300	986,100	1,115,850	1,141,800	1,141,800	1,141,800	1,141,800
	23,000	25,000	25,000	25,000	25,000	25,000	25,000
37,000	37,000	40,000	50,000	50,000	50,000	50,000	50,000
424,500	525,300	1,051,100	1,190,850	1,216,800	1,216,800	1,216,800	1,216,800

EXPENDITURE

- A. Financed from university's operating income:
- i Direct faculty operating expenditures -
 - (a) Academic salaries
 - (b) Other objects of expenditure
 - ii Library and computing centre expenditures
 - iii General university overhead
- Total
- B. Financed from funds other than university's operating income:
- i Direct faculty operating expenditures -
 - (a) Academic salaries
 - (b) Other objects of expenditure
 - ii Assisted/sponsored research*
 - iii Other applications of special funds (itemize)
- Total

250,563	304,606	460,942	523,758	546,196	546,196	546,196	546,196
92,731	125,266	161,404	199,764	215,691	215,691	215,691	215,691
9,500	10,332	20,820	25,770	26,160	26,160	26,160	26,160
184,851	231,470	389,589	410,247	410,247	410,247	410,247	410,247
537,645	671,674	1,032,755	1,159,539	1,198,294	1,198,294	1,198,294	1,198,294
	23,000	25,000	25,000	25,000	25,000	25,000	25,000

Total Expenditure

116

537,645	694,674	1,057,755	1,184,539	1,223,294	1,223,294	1,223,294	1,223,294
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*Note: The School of Optometry was established in July 1967. Due to the required emphasis on undergraduate work to date the research programme has not been fully developed. It is expected this will change, but the level of support can only be estimated until the graduate programme begins in Sept. 1971.

APPENDIX D

Detailed Presentation of Types and Sizes of Classes

CUA Form H

and

Detailed Presentation of Data, by Discipline, for Courses of Irregular Size

☐ YEARS 1-6 Undergraduate
☒ Year 7 Graduate

**SUMMARY OF CLASS SIZE SURVEY DATA FOR
 1969 REPORTED TO THE COMMITTEE OF PRESIDENTS
 FREQUENCY DISTRIBUTION OF CLASS SECTIONS**

SECTION TYPE	0-3			4-10			11-20			21-40			41-80			81-160			161-300			301+		
	LE	LA	TU	LE	LA	TU	LE	LA	TU	LE	LA	TU	LE	LA	TU	LE	LA	TU	LE	LA	TU	LE	LA	TU
TYPE UNIVERSITIES	3			15					5															
APPLIED HUMANITIES																								
TYPE SOCIAL SCIENCES	20			26					9				1											
APPLIED SOCIAL SCIENCES																								
TYPE BIOLOGICAL SCIENCES	6			4					1															
APPLIED BIOLOGICAL SCIENCES																								
TYPE PSYCHOLOGICAL SCIENCES	29			37					20				1											
APPLIED PSYCHOLOGICAL SCIENCES																								
TYPE PHYSICAL SCIENCES	13			43					17															
APPLIED PHYSICAL SCIENCES																								
TOTAL	21			125					52				2											

NOTES AND INSTRUCTIONS:

- (1) Data will agree with and be based upon CRUO survey requirements as set out in Memorandum dated 14th July, 1970 - re Analysis of section size information.
- (2) This form is to be completed twice, once for years 1-6 undergraduate, and once for year 7-graduate.
- (3) LE - Lecture; LA - Laboratory; TU - Tutorials and Seminars.
- (4) Average Section Size = Total of Course Enrolments ÷ Total Number of Sections.
- (5) As per Form 3 (A3) Submitted December 1969, distributed according to D.B.S. Discipline Groupings used in the Survey.

IMPORTANT
 The class size spectrum used here anticipates the spectrum which only the basic data itself will indicate as most appropriate. For this and other reasons this summary is very much secondary to the provision of the data itself to CRUO.

FORM CUA-70-H

UNIVERSITY Waterloo

AVERAGE SECTION SIZE (4)	TOTAL STUDENT CONTACT HOURS PER WEEK	TOTAL F.T.E. ENROLMENT FALL TERM (5)	TOTAL CONTACT HOURS/WEK PER STUDENT <small>see attached comments</small>
7.0	626	170.9	N/A
	-	-	N/A
7.5	1,097	247.7	N/A
	-	-	N/A
7.4	64	53.2	N/A
	-	1.0	N/A
8.3	1,757	216.4	N/A
7.7	1,460	648.5	N/A
7.6	5,004	1,343.2	3.7

☒ YEARS 1-6 Undergraduate
☐ Year 7 Graduate

SUMMARY OF CLASS SIZE SURVEY DATA FOR
 1969 REPORTED TO THE COMMITTEE OF PRESIDENTS
 FREQUENCY DISTRIBUTION OF CLASS SECTIONS

FORM CUA-70-H

UNIVERSITY Waterloo

SECTION SIZE	0-3			4-10			11-20			21-40			41-80			81-160			161-300			301+			AVERAGE SECTION SIZE (4)	TOTAL STUDENT CONTACT HOURS PER WEEK (Years 2 & up)	TOTAL F.T.E. ENROLLMENT FALL TERM (5)	TOTAL CONTACT HOURS PER STUDENT (See attached comments)
	LE	LA	TU	LE	LA	TU	LE	LA	TU	LE	LA	TU	LE	LA	TU	LE	LA	TU	LE	LA	TU	LE	LA	TU				
PURE HUMANITIES	11			27	1	1	120	36	9	118	15		7			3			1					22.6	10,245	378	N/A	
APPLIED HUMANITIES																									-	-	N/A	
PURE SOCIAL SCIENCES	3			19	1	46	27	14	38	37	30	7	31			32			13	1		5		68.1	18,191	827	N/A	
APPLIED SOCIAL SCIENCES								6		14	13	11	5	5		3			1					57.0	2,923	184	N/A	
PURE BIOLOGICAL SCIENCES				4	3	1	3	4		5	40		4			3			2					62.5	4,199	131	N/A	
APPLIED BIOLOGICAL SCIENCES				7	6	3	4	11		16	10		2	1					1					81.2	2,322	162	N/A	
PURE PHYSICAL SCIENCES	5			20	7		29	42	71	34	105	162	106	35	1	53	8		6					60.3	23,441	1,194	N/A	
APPLIED PHYSICAL SCIENCES	1			14	1	22	15	24	20	25	23	62	62	10	16	35	4		1					62.1	23,870	1,417	N/A	
TOTAL	20			61	19	73	198	117	147	240	154	85	170	57	19	15	16	8	35	4				47.8	85,191	3,213	Year 2 & up	

NOTES AND INSTRUCTIONS:

- (1) Data will agree with and be based upon CPUO survey requirements as set out in Memorandum dated 14th July, 1970 - re Analysis of section size information.
- (2) This form is to be completed twice, once for years 1-6 undergraduate, and once for year 7-graduate.
- (3) Le - Lecture; La - Laboratory; Tu - Tutorials and Seminars.
- (4) Average Section Size = Total of Course Enrolments ÷ Total Number of Sections.
- (5) As per Forms UA3 Submitted December 1969, distributed according to D.B.S. Discipline Groupings used in the Survey.

IMPORTANT The class size spectrum used here anticipates prematurely the spectrum which only the basic data itself will indicate as most appropriate. For this and other reasons this summary is very much secondary to the provision of the data itself to CPUO.

COMMENTS CONCERNING FORM CUA-70-HSUMMARY OF CLASS SIZE SURVEY DATA

1. The determination of the year I Total Student Contact Hours per Week has of necessity been based upon the totals of year I classes rather than upon the aggregation of the actual hours of year I students.
2. The Total Student Contact Hours per Week includes all students taking the courses within the particular discipline area even though their home enrolment is in a different discipline, while total F.T.E. enrolment, Fall Term, is actually home enrolment and the students can take courses in any of the other discipline areas. Thus, Total Contact Hours per Week per Student is meaningless because of the varying rates of service teaching between the discipline areas and this calculation has not been made except at the total level.

DETAILED PRESENTATION OF DATA, BY DISCIPLINE, FOR

COURSES OF IRREGULAR SIZE

(This information is provided to allow full comparative analysis of those courses which vary significantly from the mean in each category.)

Discipline Code	Subject	Course #	Type	Average Size	Number of Section
1	English	326	Tutorial	2.0	1
	English	495	Tutorial	1.0	1
	French	425	Lecture	1.0	1
	Greek	365	Lecture	3.0	1
	Latin	100	Lecture	2.0	1
	Latin	250	Lecture	3.0	1
	Latin	485	Lecture	3.0	1
	Philosophy	326	Lecture	3.0	1
	Philosophy	390	Lecture	1.0	1
	Philosophy	487	Lecture	3.0	1
	Philosophy	499	Tutorial	3.0	1
	Religious Stud.	236	Lecture	2.0	1
	Russian	451	Lecture	3.0	1
	Spanish	450	Lecture	2.0	1
3	Economics	440	Lecture	3.0	1
	Economics	460	Lecture	3.0	1
	Economics	256	Lab.	180.0	1
	Geography	400	Seminar	1.0	1
	History	363	Lecture	2.0	1
	History	363	Seminar	1.0	2
	History	465	Seminar	1.0	1
	History	476	Seminar	3.0	1
	History	479	Seminar	2.0	1
	History	480	Seminar	3.0	1
	History	473	Seminar	3.0	2
	Political Scie.	375	Seminar	3.0	1
	Psychology	101	Lecture	319.0	5
7	Mathematics	437	Lecture	1.0	2
	Mathematics	463	Lecture	3.0	1
	Mathematics	426	Lecture	3.0	1
	Mathematics	461	Lecture	3.0	1
8	Chemical				
	Engineering	587	Lecture	1.0	1

APPENDIX E

Resource Allocation - University Operating Funds

CUA Forms I and J (with supplements)

STATEMENT OF THE FINANCING OF OPERATIONS - Page 1

	1969-70 Actual (\$000's)	1970-71 Official Budget(7) (\$000's)	1971-72 Projected (6) (\$000's)
All gross expenditures of the University other than on Capital Account:	38,445	45,841	
<u>LESS:</u> (a) Assisted/Sponsored Research	4,182	4,500	
(b) Principal and interest payments on capital indebtedness			
(c) Student aid	53		
(d) Ancillary enterprises (as per Form J)	4,981	5,930	
(e) Costs of programs in education, if any (Note 1)			
Total exclusions	9,216	10,430	
Remainder - representing operating expenditures eligible for formula and other operating grant support (analysed on page 2)	29,229	35,411	
<u>Sources of Financial Support for Above:</u>			
(a) Basic operating income (weighted enrol- ment * x unit value)	28,345	33,325	
(b) Other operating grants	472	456	
(c) Balance	412	1,630	
Total (equal to Remainder above)	29,229	35,411	

Note 1: For 1969-70 and 1970-71 deduct amounts representing total allowable operating expenditures taken into account in arriving at grants for teacher education programs. For 1971-72 deduct amount representing 5% escalation in the budget on a per student basis.

* For 1970-71, official budget figure of weighted enrolment.

STATEMENT OF THE FINANCING OF OPERATIONS - Page 2

124

E1

1971-72
Projected

	1969-70 Actual		1970-71 Official Budget		
<u>1. Enrolment of the university</u> <u>weighted in accordance with</u> <u>the Operating Grants Formula (1)</u>					
(i) Projected (official)			20,520		
(ii) Used in official budget of the university			20,520		
(iii) Latest estimate			20,430		
(iv) Actual	18,526				
		Total Amount (\$000's)	Per unit of weight- ed Enrol- ment	Total Amount (\$000's)	Per unit of weight- ed Enrol- ment (2)
..Total operating expenditures, as per Page 1(5)	29,229	1,577	35,411	1,725	
Less: (i) All academic salaries (3) (full-time, part-time graduate assistant- ships and other class- room instructional salaries)	11,726	633	15,132	737	
(ii) Fringe Benefits related to above	759	41	993	48	
Balance, All other operating expenditures	16,744	903	19,286	940	
<u>Breakdown of all other Operating expenditures:</u>					
1. <u>All furniture and equip- ment</u>	1,620	87	1,553	76	
2. <u>Library:</u>					
-Library Acquisitions	926	50	1,100	54	
-Salaries and wages of library staff	948	51	1,220	59	
-Fringe benefits related to above	66	4	85	4	
3. <u>Plant maintenance (4)</u>					
-Salaries and wages	2,039	110	2,335	114	
-Fringe benefits related to above	175	9	198	10	
-Other	1,153	62	1,218	59	
4. <u>Remainder</u>					
-Salaries and wages	5,635	304	6,771	330	
-Fringe benefits related to above	421	23	505	25	
-Other objects of expenditure	3,761	203	4,301	209	
TOTAL (as above)	16,744	903	19,286	940	

- NOTES: (1) This, of course, may be greater than the eligible number of basic income units.
(2) Basis of calculation: weighted enrolment used in official budget of the university.
(3) To include all academic administrative appointments.
(4) To include all expenses (except furniture and equipment) included under definitions 18 and 22(a) of "Instructions, Definitions and Notes Relating to the Completion of the DBS-CAUBO Report on Financial Statistics of Universities and Colleges for 1969".
(5) By way of supplementary comment, please disclose the University's policies with respect to the use it may make of "reserves" or "appropriations". The effect of such policies, and their measurable dollar impact should also be disclosed, in sufficient detail to permit a full understanding of the University's procedures towards arriving at annual operating expenditures.
(6) The completion of this column is optional.
(7) That Budget which has been adopted by the Board of Governors.

ATTACHMENT TO CUA-70-INOTE 5:

Commencing in 1967/68, the University has followed appropriation methods in the determination of the flow of operating funds from one year to another. The University does not follow an encumbrance method of accounting at the fiscal year end, i.e. the setting up of commitments as liabilities, but rather recognizes expenditures and liabilities only for goods or services received by the year end. The appropriations, as approved by the Board of Governors, have been established in major areas such as the Library and the academic faculties to finance expenditures which were planned for the current year or constitute the establishment for extraordinary costs related to projects or areas for the ensuing year.

The details of the appropriations and their dollar impact is best disclosed by the attached statements from the 1968/69 and 1969/70 financial statements.

WORKSHEET FOR COMMENTS 2 (b) (ii)

Form CUA-70-I

STATEMENT OF THE FINANCING OF OPERATIONS - Page 1

	1968-69 Actual (\$000's)	1969-70 Actual (\$000's)	1970-71 Official Budget (\$000's)
All gross expenditures of the University other than on Capital Account	29,838	38,445	45,841
LESS: (a) Assisted/Sponsored Research	3,702	4,182	4,500
(b) Principal and interest payments on capital indebtedness			
(c) Student aid	116	53	
(d) Ancillary enterprises (as per Form J)	3,638	4,981	5,930
(e) Costs of programs in education, if any (Note 1)			
Total exclusions	7,456	9,216	10,430
Remainder - representing operating expenditures eligible for formula and other operating grant support (analysed on page 2)	22,382	29,229	35,411
<u>Sources of Financial Support for Above:</u>			
(a) Basic operating income (weighted enrolment * x unit value)	22,677	28,345	33,325
(b) Other operating grants	302	472	456
(c) Balance	(597)	412	1,630
Total (equal to Remainder above)	22,382	29,229	35,411

Note 1: For 1969-70 and 1970-71 deduct amounts representing total allowable operating expenditures taken into account in arriving at grants for teacher education programs. For 1971-72 deduct amount representing 5% escalation in the budget on a per student basis.

* For 1970-71, official budget figure of weighted enrolment.

STATEMENT OF THE FINANCING OF OPERATIONS - Page 2

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E1

	1968-69 Actual	1969-70 Actual	1970-71 Official Budget
<u>Enrolment of the university</u> <u>weighted in accordance with</u> <u>the Operating Grants Formula (1)</u>			
(i) Projected (official)			
(ii) Used in official budget of the university			20,520
(iii) Latest estimate			20,520
(iv) Actual	15,639	18,526.8	20,430

	Total Amount (\$000's)	Per unit of weight- ed Enrol- ment \$	Total Amount (\$000's)	Per unit of weight- ed Enrol- ment (2) \$	Total Amount (\$000's)	Per unit of weight- ed Enrol- ment \$
<u>Total operating expenditures,</u> <u>as per Page 1(5)</u>	22,382	1,431	29,229	1,577	35,411	1,725
<u>Less: (i) All academic salaries(3)</u> (full-time, part-time graduate assistant- ships and other class- room instructional salaries)	8,887	568	11,726	633	15,132	737
(ii) Fringe Benefits related to above	566	36	759	41	993	48
<u>Balance, All other operating expenditures</u>	12,929	827	16,744	903	19,286	940
<u>Breakdown of all other Operating expenditures:</u>						
1. <u>All furniture and equip- ment</u>	1,776	114	1,620	87	1,553	76
2. <u>Library:</u>						
-Library Acquisitions	473	30	926	50	1,100	54
-Salaries and wages of library staff	672	43	948	51	1,220	59
-Fringe benefits related to above	47	3	66	4	85	4
3. <u>Plant maintenance(4)</u>						
-Salaries and wages	1,497	96	2,039	110	2,335	114
-Fringe benefits related to above	131	8	175	9	198	10
-Other	1,000	64	1,153	62	1,218	59
4. <u>Remainder</u>						
-Salaries and wages	4,482	287	5,635	304	6,771	330
-Fringe benefits related to above	343	22	421	23	505	25
-Other objects of expenditure	2,508	160	3,761	203	4,301	209
<u>TOTAL (as above)</u>	12,929	827	16,744	903	19,286	940

NOTES: (1) This, of course, may be greater than the eligible number of basic income units.

(2) Basis of calculation: weighted enrolment used in official budget of the univer-
sity.

(3) To include all academic administrative appointments.

(4) To include all expenses (except furniture and equipment) included under defini-
tions 18 and 22(a) of "Instructions, Definitions and Notes Relating to the Com-
pletion of the DBS-CAUBO Report on Financial Statistics of Universities and
Colleges for 1969".

(5) By way of supplementary comment, please disclose the University's policies with
respect to the use it may make of "reserves" or "appropriations". The effect of
such policies, and their measurable dollar impact should also be disclosed, in
sufficient detail to permit a full understanding of the University's procedures
towards arriving at annual operating expenditures.

(6) The completion of this column is optional.

(7) That Budget which has been adopted by the Board of Governors.

THE UNIVERSITY OF WATERLOO
STATEMENT OF OPERATING FUND RESERVES
FOR THE YEAR ENDED JUNE 30, 1970
(with comparative figures for the year 1969)

	Equipment, Furnishings and Library Books out of Operating Funds (Schedule 7)		Academic and Non-Academic Expenses (Schedule 8)		Residence maintenance and Capital Debt Retirement		Replacement and purchase of Ancillary Enter- prises Equipment and Furnishings		Future Operating Expenditures - Ancillary Enterprises	
	1970	1969	1970	1969	1970	1969	1970	1969	1970	1969
Balance, beginning of year	795,315	861,174	881,834	23,538	232,197	169,069	202,820	122,486	11,103	11,103
<u>Deduct:</u>										
Equipment, Furnishings and Library Book Expenditures	477,899	502,615	815,304	10,820					11,103	
Operating Expenditures										
Adjustment of 1969 Computer Activity Appropriation			15,000		39,541		53,913	12,001		
Transfer to Ancillary Enterprises (schedule 5)					15,854		3,288	790		
Transfers to Capital Income										
Purchase of Replacement Equipment and Furnishings	477,899	502,615	830,304	10,820	55,395	-	57,201	12,791	11,103	-
	317,416	358,559	51,530	12,718	176,802	169,069	145,619	109,695	-	-
<u>Add:</u>										
Appropriations for the year	944,319	436,756	1,486,048	857,025		63,128	165,647	93,125	25,408	-
Adjustment of 1968 Marketing Expense				12,091						
Balance, end of year	1,261,735	795,315	1,537,578	881,834	176,802	232,197	311,266	202,820	25,408	11,103

THE UNIVERSITY OF WATERLOO
 STATEMENT OF OPERATING INCOME AND EXPENSES AND
 UNALLOCATED INCOME CARRIED FORWARD
 FOR THE YEAR ENDED JUNE 30, 1970
 (with comparative figures for the year 1969)

	Schedule Number	1970	1969
<u>Income:</u>			
Academic Fees	1	\$ 5,539,336	4,495,833
Grants	1	24,153,164	19,175,405
Interest		480,145	362,318
Other		669,330	503,958
		<u>30,841,975</u>	<u>24,537,514</u>
Ancillary Enterprises	5	5,115,905	3,625,666
Sponsored Research Funds	•	4,182,203	3,702,499
		<u>40,140,083</u>	<u>31,865,679</u>
<u>Expenses:</u>			
Academic	2	23,300,252	17,890,245
Administrative	3	1,261,522	1,030,719
General	3	1,130,842	612,037
Municipal Taxes		109,063	-
Major Repairs		37,978	51,804
Physical Plant and Planning	3	3,070,943	2,551,075
Scholarships and Bursaries		52,832	116,351
Student Affairs	3	317,889	245,421
		<u>29,281,321</u>	<u>22,497,652</u>
Ancillary Enterprises	5	4,981,262	3,482,342
Sponsored Research Funds		4,182,203	3,702,499
		<u>38,444,786</u>	<u>29,682,493</u>
Excess of Income over Expenses for the year		1,695,297	2,183,186
Interest transferred to Capital Funds		-	362,318
		<u>1,695,297</u>	<u>1,820,868</u>
Add back expenses included above from prior years' appropriations:			
Furnishings, Equipment and Library Books	7	477,899	502,615
Operating	8	815,304	10,820
Ancillary Enterprises	5	53,932	790
		<u>1,347,135</u>	<u>514,225</u>
		<u>3,042,432</u>	<u>2,335,093</u>
Appropriations - Current Year:			
Furnishings, Equipment and Library Books	7	944,319	436,756
Operating	8	1,486,048	857,025
Ancillary Enterprises	5	191,055	156,253
		<u>2,621,422</u>	<u>1,450,034</u>
Unallocated Income for the year		421,010	885,059
Unallocated Income, beginning of year		785,661	(99,398)
Unallocated Income carried forward		<u>1,206,671</u>	<u>785,661</u>

THE UNIVERSITY OF WATERLOO
 SCHEDULE OF EXPENDITURES FOR EQUIPMENT, FURNISHINGS AND LIBRARY BOOKS OUT OF OPERATING FUND
 FOR THE YEAR ENDED JUNE 30, 1970
 (with comparative figures for the year 1969)

	Total Expenditures			Expended From Prior Years' Appropriations			Expended From Current Year's Operating Funds		
	Equipment and Furnishings	Library Books	Total	Equipment and Furnishings	Library Books	Total	Equipment and Furnishings	Library Books	Total
Environmental Studies	\$ 48,817	23,151	71,968	-	1,407	1,407	48,817	21,744	70,561
Arts	37,946	268,670	306,616	292,720	96,165	388,885	66,643	172,505	239,148
Engineering	403,105	66,338	469,443	718,223	43,050	761,273	173,407	23,288	196,695
Science	336,452	99,191	435,643	372,864	24,199	397,063	312,253	79,431	391,684
Physical Education and Recreation	69,281	9,592	78,873	39,903	5,328	45,231	64,820	4,264	69,084
Mathematics	311,817	58,805	370,622	417,276	58,805	476,081	311,817	-	311,817
Academic Services Departments	209,448	399,946	609,394	239,671	8,883	248,554	200,565	230,320	430,885
Academic Development Fund	-	-	-	49,374	-	49,374	-	-	49,374
Administrative Departments	42,717	-	42,717	56,874	-	56,874	42,717	-	42,717
Student Affairs	13,721	-	13,721	8,849	6,890	15,739	6,831	-	6,831
Physical Plant and Planning	23,806	-	23,806	69,793	-	69,793	23,806	-	23,806
General	123,148	-	123,148	20,340	-	20,340	119,911	-	119,911
	1,620,258	925,693	2,545,951	2,299,077	394,141	2,693,218	1,536,500	531,552	2,068,052
			(Statement 4)			(Statement 3)			

SCHEDULE OF PROVISIONS FOR FUTURE EQUIPMENT, FURNISHINGS AND LIBRARY BOOK EXPENDITURES
 OUT OF OPERATING FUNDS - AS AT JUNE 30, 1970
 (with comparative figures as at June 30, 1969)

	1970			1969		
	Equipment and Furnishings	Library Books	Total	Equipment and Furnishings	Library Books	Total
Environmental Studies	\$ -	6,256	6,256	-	1,407	1,407
Arts	-	127,995	127,995	-	96,165	96,165
Engineering	6,189	40,712	46,901	-	43,050	43,050
Science	165,732	9,819	175,551	-	19,760	19,760
Physical Education and Recreation	7,000	6,736	13,736	-	5,328	5,328
Mathematics	-	50,000	50,000	-	60,783	60,783
Academic Services Departments	58,539	415,000	473,539	20,053	69,626	89,679
Academic Development Fund	-	34,306	34,306	-	100,000	100,000
Administrative Departments	658	-	658	-	-	-
Student Affairs	1,325	-	1,325	6,890	-	6,890
Physical Plant and Planning	2,184	-	2,184	-	-	-
General	11,868	-	11,868	13,694	-	13,694
	253,495	690,824	944,319	396,119	396,756	792,875
			(Statement 3)			(Statement 3)

THE UNIVERSITY OF WATERLOO
SCHEDULE OF APPROPRIATIONS FOR ACADEMIC AND NON-ACADEMIC EXPENSES
FOR THE YEAR ENDED JUNE 30, 1970
(with comparative figures for the year 1969)

	Provision for year		Expended from prior years' appropriations	
	<u>1970</u>	<u>1969</u>	<u>1970</u>	<u>1969</u>
Academic expenses:				
Arts	\$ 82,554	178,350	178,350	-
Engineering	116,137	233,107	241,809	622
Environmental Studies	119,415	-	-	-
Integrated Studies	3,750	-	-	-
Mathematics	155,167	127,030	127,030	4,555
Physical Education and Recreation	120,694	14,540	14,540	-
Science	53,916	146,540	146,540	4,028
	<hr/>	<hr/>	<hr/>	<hr/>
Sub-Total	651,633	699,567	708,269	9,205
Academic Development Fund	66,934	23,952	23,952	-
Academic Service Departments	-	-	-	1,615
Computer activity income	140,767	34,674	27,876	-
Computer systems group	126,384	78,913	36,059	-
Inter-Faculty Studies	56,000	-	-	-
Other	15,185	-	431	-
	<hr/>	<hr/>	<hr/>	<hr/>
	1,056,903	837,106	796,587	10,820
	<hr/>	<hr/>	<hr/>	<hr/>
Non-Academic expenses:				
Data Processing	135,000	-	-	-
General	24,145	19,919	18,717	-
Planning	200,000	-	-	-
Temporary Accommodation - Architecture	70,000	-	-	-
	<hr/>	<hr/>	<hr/>	<hr/>
	429,145	19,919	18,717	-
	<hr/>	<hr/>	<hr/>	<hr/>
Totals	<u>1,486,048</u>	<u>857,025</u>	<u>815,304</u>	<u>10,820</u>

ANCILLARY OPERATIONS (1)

Form OA 70-2

1969-70 Actual

Total for All Ancillary Enterprises

NAME OF ANCILLARY ENTERPRISE	ATHLETICS	BOOKSTORE	HEALTH SERVICES	FOOD SERVICES	STUDENT VILLAGE RESIDENCES	MINOVA HAGEY RESIDENCE	GRAPHIC SERVICES	BARBER SHOP	1969-70 Actual	1970-71 Budget	1971-72 Projected
<u>SOURCES OF DIRECT REVENUE</u>											
1. Fee or membership revenue.	220,089		79,737		2,302,337	49,546			2,651,709	2,947,810	
2. Direct charges for goods or services.	49,977	1,147,630		533,064	290,367		383,393	7,341	2,411,772	2,867,649	
3. Other.	12,063	1,425	13,784	6,667	18,130	355			52,424	114,870	
<u>TOTAL DIRECT REVENUE</u>	282,129	1,149,055	93,521	539,731	2,610,834	49,901	383,393	7,341	5,115,905	5,930,329	
<u>DIRECT COSTS</u>											
1. Costs directly attributable to the enterprise.	293,232	1,081,033	79,613	531,030	2,537,170	47,707	334,885	10,163	4,914,833	5,815,665	
2. Costs shared with other ancillary enterprise(s).		13,396		9,803	38,016	3,014	2,000	200	66,429	114,664	
<u>TOTAL DIRECT COSTS</u>	293,232	1,094,429	79,613	540,833	2,575,186	50,721	336,885	10,363	4,981,262	5,930,329	
<u>EXCESS (shortfall) of Direct Revenue over Direct Costs</u>	(11,103)	54,626	13,908	(1,102)	35,648	(820)	46,508	(3,022)	134,643	-	
<u>INDIRECT (Overhead or Joint) Costs</u>											
- as ordinarily budgeted but excluding transfers as dealt with below:											
<u>EXCESS (shortfall)</u>	(11,103)	54,626	13,908	(1,102)	35,648	(820)	46,508	(3,022)	134,643	-	
<u>NET EFFECT OF TRANSFERS "(To)" and "From" "Appropriations" and "Reserves"</u>	11,103	(31,420)	(13,908)	(20,970)	(35,648)	820	(46,508)	(592)	(137,123)		
<u>REPORTED OR BUDGETED EXCESS OR (SHORTFALL) ON ANCILLARY ENTERPRISE.</u>	-	23,206	-	(22,072)	-	-	-	(3,614)	(2,480)	-	

(1) Those enterprises that are not directly related to the educational functions of the university, but are undertaken or operated to provide services to faculty and students. For purposes of illustration, operations which may be recognized as ancillary enterprises are student residences, student unions, parking facilities, cafeterias, dining halls, book stores, university presses, intercollegiate and intramural athletics, health services (except portion provided as part of counselling or advisory services) etc.

APPENDIX F

New Faculty Appointments - Update of Citizenship Analysis

CUA Form K

FULL-TIME FACULTY APPOINTMENTS DURING PERIOD SEPTEMBER 15th, 1969 TO SEPTEMBER 15th, 1970

This return is requested in order to update the Citizenship Analysis of University Faculty carried out by the C.P.U.O in early 1970. Please note that discipline areas (and programs included within such areas) remain those of the Dominion Bureau of Statistics.

TOTAL	DISCIPLINE AREA	CANADA	UNITED STATES	UNITED KINGDOM	OTHER COMMON-WEALTH	FRANCE	OTHER
<u>AGGREGATE FIGURES</u>							
	- Country of Residence in Year Previous to Appointment	42	34	8	3		11
	- Citizenship Status at date of Appointment	49	18	14	6		11
	- Citizenship Status at birth	41	15	15	6		21
	- Country of 1st Degree	48	17	14	6		13
	- Country of last Degree	35	40	12			11
<u>BREAKDOWN BY DISCIPLINE AREA</u>							
<u>FACULTY ADMINISTRATION</u>							
	- Country of Residence in Year Previous to Appointment		2				
	- Citizenship Status at date of Appointment	1	1				1
	- Citizenship Status at birth	1					
	- Country of 1st Degree	1	1				
	- Country of last Degree		2				
<u>HUMANITIES</u>							
<u>Pure</u>	- Country of Residence in Year Previous to Appointment	5	3	3			
	- Citizenship Status at date of Appointment	6	2	3			
	- Citizenship Status at birth	4	1	4			2
	- Country of 1st Degree	4	2	4			1
	- Country of last Degree	3	5	3			
<u>Applied</u>	- Country of Residence in Year Previous to Appointment						
	- Citizenship Status at date of Appointment						
	- Citizenship Status at birth						
	- Country of 1st Degree						
	- Country of last Degree						
<u>SOCIAL SCIENCE</u>							
<u>Pure</u>	- Country of Residence in Year Previous to Appointment	8	9	1			2
	- Citizenship Status at date of Appointment	9	7	1	1		134
	- Citizenship Status at birth	7	7	1	1		4
	- Country of 1st Degree	10	6	1	1		2
	- Country of last Degree	8	9	1			2

TOTAL	DISCIPLINE AREA	CANADA	UNITED STATES	UNITED KINGDOM	OTHER COMMON-WEALTH	FRANCE	OTHER
	<u>SOCIAL SCIENCE (continued)</u>						
	<u>Applied</u> - Country of Residence in Year Previous to Appointment	2	4				
	- Citizenship Status at date of Appointment	5			1		
	- Citizenship Status at birth	5			1		
	- Country of 1st Degree	5			1		
	- Country of last Degree	1	5				
	<u>BIOLOGICAL SCIENCE</u>						
	<u>Pure</u>						
	- Country of Residence in Year Previous to Appointment	2		2			
	- Citizenship Status at date of Appointment			2			
	- Citizenship Status at birth			2			
	- Country of 1st Degree	1		1			
	- Country of last Degree						
	<u>Applied</u>						
	- Country of Residence in Year Previous to Appointment	1	1	1	1		1
	- Citizenship Status at date of Appointment	1	1	1			2
	- Citizenship Status at birth	1	1	1			2
	- Country of 1st Degree	2	1	1			1
	- Country of last Degree		3	1			1
	<u>PHYSICAL SCIENCE</u>						
	<u>Pure</u>						
	- Country of Residence in Year Previous to Appointment	3	1	1			2
	- Citizenship Status at date of Appointment	5	1	1			
	- Citizenship Status at birth	4	1	1			1
	- Country of 1st Degree	5	1				1
	- Country of last Degree	5	1				1
	<u>Applied</u>						
	- Country of Residence in Year Previous to Appointment	21	14	2	2		6
	- Citizenship Status at date of Appointment	22	6	6	4		7
	- Citizenship Status at birth	19	5	6	4		11
	- Country of 1st Degree	21	6	6	4		8
	- Country of last Degree	17	15	6			7
	Finance Branch						
	6/10/70						135

APPENDIX G

Long-Term Selected Enrolment Data

CUA Form L (with detailed supplements)

TO 1975-76

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G1

F.T.E. ENROLMENT

Instructions:

1. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D.U.A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st University year subsequent to Grade 13 into undergraduate degree Programs only.
2. For the University of Guelph and The University of Waterloo, separate reports are requested representing "Fall Term, on campus", Fall Term "on and off" campus (Waterloo), and Equivalent Full-Time (Adjustment for Co-operative and Trimester Systems) bases for enrolment.
3. For constituent Universities with Federated or Affiliated Institutions, Full-Time Enrolment must take into account net teaching service performed for these Institutions, and will therefore be stated in terms of F.T.E. for teaching services performed (Toronto, Waterloo, Western and Laurentian).
4. Enrolments in university programmes in education should be excluded from total University figures provided but should be reported on a separate Form CUA-70-L.

1970-71 (Estimate)		1971-72	1972-73	1973-74	1974-75	1975-76
	(i) Full-Time "Freshman Intake" (i.e. 1st Year Undergraduate Degree)					
<u>3,290</u>		<u>3,350</u>	<u>3,418</u>	<u>3,478</u>	<u>3,504</u>	<u>3,521</u>
	(ii) Total Full-Time Undergraduate (including diploma and other non-degree and make-up or qualifying year)					
<u>9,170</u>		<u>10,046</u>	<u>10,452</u>	<u>10,692</u>	<u>10,836</u>	<u>10,940</u>
	(iii) Total Graduate (Fall-Term)					
<u>1,360</u>		<u>1,393</u>	<u>1,449</u>	<u>1,511</u>	<u>1,571</u>	<u>1,616</u>
	(iv) Total Full-Time Enrolment (ii plus iii)					
<u>10,530</u>		<u>11,439</u>	<u>11,901</u>	<u>12,203</u>	<u>12,407</u>	<u>12,556</u>
	(v) F.T.E. of Part-Time Enrolment using Formula Conversion Factors (including "Summer School" Graduate Students)					
<u>444</u>		<u>501</u>	<u>548</u>	<u>597</u>	<u>643</u>	<u>694</u>
	(vi) F.T.E. Enrolment (iv plus v)					
<u>10,974</u>		<u>11,940</u>	<u>12,449</u>	<u>12,800</u>	<u>13,050</u>	<u>13,250</u>
	(vii) Total Basic Income Units Under Formula (i.e. Total Weighted Enrolment)					
<u>20,422</u>		<u>22,012</u>	<u>22,973</u>	<u>23,731</u>	<u>24,241</u>	<u>24,678</u>

Explanatory Comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969 (Please deal with both the quantitative parameters of the variations and the reasons for them):

TO 1975-76

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G1

FALL TERM "ON and OFF CAMPUS"

Instructions:

1. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D.U.A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st University year subsequent to Grade 13 into undergraduate degree Programs only.
2. For the University of Guelph and The University of Waterloo, separate reports are requested representing "Fall Term, on campus", Fall Term "on and off" campus (Waterloo), and Equivalent Full-Time (Adjustment for Co-operative and Trimester Systems) bases for enrolment.
3. For constituent Universities with Federated or Affiliated Institutions, Full-Time Enrolment must take into account net teaching service performed for these Institutions, and will therefore be stated in terms of F.T.E. for teaching services performed (Toronto, Waterloo, Western and Laurentian).
4. Enrolments in university programmes in education should be excluded from total University figures provided but should be reported on a separate Form CUA-70-L.

1970-71 (Estimate)		<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>	<u>1974-75</u>	<u>1975-76</u>
	(i) Full-Time "Freshman Intake" (i.e. 1st Year Undergraduate Degree)					
<u>3,327</u>		<u>3,397</u>	<u>3,468</u>	<u>3,531</u>	<u>3,557</u>	<u>3,574</u>
	(ii) Total Full-Time Undergraduate (including diploma and other non-degree and make-up or qualifying year)					
<u>10,149</u>		<u>11,055</u>	<u>11,520</u>	<u>11,772</u>	<u>11,936</u>	<u>12,079</u>
	(iii) Total Graduate (Fall-Term)					
<u>1,360</u>		<u>1,393</u>	<u>1,449</u>	<u>1,511</u>	<u>1,571</u>	<u>1,616</u>
	(iv) Total Full-Time Enrolment (ii plus iii)					
<u>11,509</u>		<u>12,448</u>	<u>12,969</u>	<u>13,283</u>	<u>13,507</u>	<u>13,695</u>
	(v) F.T.E. of Part-Time Enrolment using Formula Conversion Factors (including "Summer School" Graduate Students)					
<u>444</u>		<u>501</u>	<u>548</u>	<u>597</u>	<u>643</u>	<u>694</u>
	(vi) F.T.E. Enrolment (iv plus v)					
<u>11,953</u>		<u>12,949</u>	<u>13,517</u>	<u>13,880</u>	<u>14,150</u>	<u>14,389</u>
	(vii) Total Basic Income Units Under Formula (i.e. Total Weighted Enrolment)					

Explanatory Comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1964 (Please deal with both the quantitative parameters of these variations and the reasons for them):

TO 1975-76

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FALL TERM "ON CAMPUS"

Instructions:

1. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D.U.A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (1) which is for registration in the 1st University year subsequent to Grade 13 into undergraduate degree Programs only.
2. For the University of Guelph and The University of Waterloo, separate reports are requested representing "Fall Term, on campus", Fall Term "on and off" campus (Waterloo), and Equivalent Full-Time (Adjustment for Co-operative and Trimester Systems) bases for enrolment.
3. For constituent Universities with Federated or Affiliated Institutions, Full-Time Enrolment must take into account net teaching service performed for these Institutions, and will therefore be stated in terms of F.T.E. for teaching services performed (Toronto, Waterloo, Western and Laurentian).
4. Enrolments in university programmes in education should be excluded from total University figures provided but should be reported on a separate Form CUA-70-L.

1970-71 (Estimate)		1971-72	1972-73	1973-74	1974-75	1975-76
	(i) Full-Time "Freshman Intake" (i.e. 1st Year Undergraduate Degree)					
<u>3,260</u>		<u>3,330</u>	<u>3,405</u>	<u>3,469</u>	<u>3,495</u>	<u>3,511</u>
	(ii) Total Full-Time Undergraduate (including diploma and other non-degree and make-up or qualifying year)					
<u>8,381</u>		<u>9,235</u>	<u>9,550</u>	<u>9,786</u>	<u>9,907</u>	<u>10,009</u>
	(iii) Total Graduate (Fall-Term)					
<u>1,360</u>		<u>1,393</u>	<u>1,449</u>	<u>1,511</u>	<u>1,571</u>	<u>1,616</u>
	(iv) Total Full-Time Enrolment (ii plus iii)					
<u>9,741</u>		<u>10,628</u>	<u>10,999</u>	<u>11,297</u>	<u>11,478</u>	<u>11,625</u>
	(v) F.T.E. of Part-Time Enrolment using Formula Conversion Factors (including "Summer School" Graduate Students)					
<u>444</u>		<u>501</u>	<u>548</u>	<u>597</u>	<u>643</u>	<u>694</u>
	(vi) F.T.E. Enrolment (iv plus v)					
<u>10,185</u>		<u>11,129</u>	<u>11,547</u>	<u>11,894</u>	<u>12,121</u>	<u>12,319</u>
	(vii) Total Basic Income Units Under Formula (i.e. Total Weighted Enrolment)					

Explanatory Comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969 (Please deal with both the quantitative parameters of these variations and the reasons for them):

LONG-TERM ENROLMENT DATA

TO 1975 - 76

F. T. E. ENROLMENT

Explanatory Comments Outlining Variations in the attached enrolment data
as compared with similar forecasts submitted Fall, 1969:

- ARTS:
- (1) No significant changes, although a slight shift is reflected into the Social Sciences. (See Item 3E(iv).)
 - (2) The new figures for Part-Time University Undergraduate F. T. E. are down by more than half from the Fall of 1969 figures. These new figures indicate more conservative and realistic projections.
- MATHEMATICS: No significant changes from last year's brief.
- SCIENCE:
- (1) Regular Science Year I intake reached projected enrolment 5 years earlier than expected. Accordingly, Science projections have been marginally revised upwards except Chemistry where market conditions have acted to limit enrolment.
 - (2) Optometry undergraduate figures are revised upwards because of increased demands.
- ENGINEERING: Freshman intake is increased by 10 to allow for higher withdrawal rates; this is influenced by a reduction in the repeater rate; transfers from CAATS are allowed for in the full summary. These transfers accounted for 30-35 students two years ago; 120 last year; this year 55-60 are expected.
- PHYSICAL
EDUCATION: No significant changes; figures for upper years are increased marginally to allow for revised failure and withdrawal rate estimates. The double streaming of programmes into regular as well as co-operative is expected to reduce co-operative programme withdrawals.
- ENVIRONMENTAL
STUDIES: Minor downward revisions for 1970-71 and 1971-72 reflect higher withdrawal and failure rates, and a decision to consolidate after a period of rapid expansion.
- GRADUATE
STUDIES: There are significant changes in Engineering Ph. D. and Master's students. The latter forms the majority of the reduction, because of reduced job prospects and grants. Psychology graduate programme demand is increasing dramatically because of favourable market conditions.

July 27, 1970

UNIVERSITY OF WATERLOOFULL-TIME ENROLMENT PROJECTION TO 1975-76SUMMARY(Including Church Colleges)
(Excluding New Programmes)

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
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UNDERGRADUATESARTS

University	2,181	2,396	2,390	2,370	2,375	2,380
St. Jerome's	366	378	404	423	437	447
Renison	117	125	132	137	141	146
TOTAL	2,664	2,899	2,926	2,930	2,953	2,973

ENGINEERING

	2,701	2,730	2,763	2,816	2,856	2,857
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INTEGRATED STUDIES

	75	75	75	75	75	75
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DIVISION OF ENVIRONMENTAL STUDIES

Architecture -
Pre-Professional
Professional
Geography, Planning,
Man Environment

	176	193	193	193	193	193
	---	18	46	64	64	64
	585	706	795	845	864	867
	761	917	1,034	1,102	1,121	1,124

MATHEMATICS

Regular
Co-operative

	1,195	1,238	1,285	1,341	1,387	1,427
	1,052	1,172	1,270	1,292	1,317	1,350

TOTAL

	2,247	2,410	2,555	2,633	2,704	2,777
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July 27, 1970

FULL-TIME ENROLMENT PROJECTION TO 1975-76SUMMARY(Including Church Colleges)
(Excluding New Programmes)

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
PHYSICAL EDUCATION AND RECREATION						
Regular	139	215	299	349	397	427
Co-operative	532	620	635	634	599	576
TOTAL	671	835	934	983	996	1,003
SCIENCE						
Regular	921	1,010	1,031	1,033	1,044	1,056
Optometry	186	240	270	280	280	280
Applied Physics	106	108	119	125	130	134
Applied Chemistry	233	267	286	293	293	293
TOTAL	1,446	1,625	1,706	1,731	1,747	1,763
TOTAL UNDERGRADUATES	10,565	11,491	11,993	12,270	12,452	12,572
GRADUATES						
ARTS	364	406	446	491	520	538
ENGINEERING	434	413	393	377	377	377
DIVISION OF ENVIRONMENTAL STUDIES	67	74	82	88	91	92
MATHEMATICS	258	268	284	300	316	332
SCIENCE	237	232	244	255	269	277
TOTAL GRADUATES	1,360	1,393	1,449	1,511	1,573	1,616
GRAND TOTAL	11,925	12,884	13,442	13,781	14,025	14,188

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[illegible]

SUMMARY OF FULL-TIME STUDENTS ON CAMPUS BY TERMS
(Including Church Colleges - Excluding New Programmes)

<u>YEAR</u>	<u>FALL</u>	<u>WINTER</u>	<u>SPRING</u>
1970-71	10,225	9,850	2,972
	906 8.9%		
1971-72	11,131	10,635	3,127
	404 3.6%		
1972-73	11,535	11,200	3,197
	322 2.8%		
1973-74	11,857	11,492	3,292
	199 1.7%		
1974-75	12,056	11,734	3,348
	162 1.3%		
1975-76	12,218	11,897	3,393

ARTS

ENROLMENT PROJECTION TO 1975-76

(Regular Course)

YEAR	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
I						
Renison	42	44	46	48	49	50
St. Jerome's	129	134	140	146	148	151
University	745	745	745	750	745	745
TOTAL	916	923	931	944	942	946
II						
Renison	36	38	40	41	43	44
St. Jerome's	104	116	121	126	131	133
University	761	670	670	670	675	670
TOTAL	901	824	831	837	849	847
III						
Renison	32	34	36	38	39	41
St. Jerome's	104	99	110	115	120	124
University	497	723	636	636	636	641
TOTAL	633	856	782	789	795	806
IV						
Renison	8	9	10	10	10	11
St. Jerome's	29	29	33	31	33	34
University	110	165	241	211	211	211
TOTAL	147	203	284	252	254	256
Make-up and Qualifying						
University	50	73	77	81	85	89
First Year of 2-Year						
Masters	18	20	21	22	23	24
TOTAL	68	93	98	103	108	113

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ARTS

ENROLMENT PROJECTION TO 1975-76

(Regular Course)

YEAR	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
TOTALS						
Renison	118	125	132	137	141	146
St. Jerome's	366	378	404	423	437	447
University	2,181	2,396	2,390	2,370	2,375	2,380
GRAND TOTAL	2,665	2,899	2,926	2,930	2,953	2,973
Part-time University						
Undergraduate FTE						
Summer School	160	190	215	245	270	300
Fall/Winter	120	140	155	170	185	200
	280	330	370	415	455	500

FACULTY OF ENGINEERING

ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

	1970-71			1971-72			1972-73		
	F	W	S	F	W	S	F	W	S
IA									
General	480			480			480		
Chemical	120			120			120		
Systems	60			60			60		
TOTAL	660			660			660		
IB									
General		300	206		300	208		296	209
Chemical		75	57		78	57		78	57
Systems		-	66		-	66		-	66
TOTAL		375	329		378	331		374	332
2A									
Chemical									
Civil	53	42		66	45		65	48	
Electrical	100	56		102	57		102	56	
Mechanical	93	59		100	62		102	64	
Systems	105	56		101	54		100	55	
TOTAL	-	55		-	58		-	59	
	351	268		369	276		369	282	
2B									
Chemical									
Civil	41		49	40		60	42		63
Electrical	68		84	48		87	48		86
Mechanical	62		79	53		88	53		88
Systems	59		91	49		88	47		85
TOTAL	-		-	46		-	52		-
	230		303	236		323	242		322
3A									
Chemical									
Civil		54	41		48	40		58	42
Electrical		76	60		77	48		79	46
Mechanical		71	55		72	50		74	47
Systems		86	55		82	48		79	43
TOTAL	-	-	-	-	-	43		-	50
	287	211		279	229		290	228	

FACULTY OF ENGINEERING

ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

	1970-71		1971-72		1972-73	
	F	W	F	W	F	W
3B						
Chemical	44	37	51	38	45	37
Civil	72	59	76	61	79	49
Electrical	56	46	56	46	58	43
Mechanical	85	65	80	52	76	46
Systems	-	-	-	-	-	40
TOTAL	257	207	263	197	258	215
4A						
Chemical	19	43	39	48	38	45
Civil	38	63	53	66	55	70
Electrical	29	49	40	50	40	51
Mechanical	36	81	63	79	50	72
Systems	-	-	-	-	-	-
TOTAL	122	236	195	243	183	238
4B						
Chemical	49	81	81	85	85	85
Civil	126	115	115	120	120	120
Electrical	98	88	88	89	89	89
Mechanical	145	143	143	128	128	128
Systems	-	-	-	-	-	-
TOTAL	418	427	427	422	422	422
GRAND TOTALS	1,620	1,555	1,723	1,557	1,712	1,583
Total Student Terms						
Full Time Equivalent	4,254	4,406	4,406	4,415	4,415	4,415
Make-up and Qualifying	2,127	2,203	2,203	2,208	2,208	2,208
1st Year of 2-Yr. Masters	15	15	15	16	16	16
	8	8	8	9	9	9
	23	23	23	25	25	25
Part Time Univ. Undergrad. FTE	1	1	1	1	1	1

FACULTY OF ENGINEERING

ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

	1973-74		1974-75		1975-76	
	F	S	F	S	F	S
IA						
General	480		480		480	
Chemical	120		120		120	
Systems	60		60		60	
TOTAL	660		660		660	
IB						
General	296	209	296	209	296	209
Chemical	78	57	78	57	78	57
Systems	-	66	-	66	-	66
TOTAL	374	332	374	332	374	332
2A						
Chemical	68		68		68	
Civil	101		101		101	
Electrical	100		99		99	
Mechanical	99		99		99	
Systems	-		-		-	
TOTAL	368	283	367	282	367	282
2B						
Chemical	46	66	46	66	46	66
Civil	49	85	50	85	50	85
Electrical	56	87	56	87	56	87
Mechanical	49	85	50	85	50	85
Systems	54	-	54	-	54	-
TOTAL	254	323	256	323	256	323
3A						
Chemical		47		47		47
Civil	62	47	64	47	64	47
Electrical	80	47	79	47	79	47
Mechanical	77	50	77	50	77	50
Systems	78	46	78	46	78	46
TOTAL	297	242	298	242	298	242

FACULTY OF ENGINEERING

ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

	1973-74				1974-75				1975-76			
	F	W	S	F	W	S	F	W	S	F	W	S
3B												
Chemical	54	39		58	44		58	44				
Civil	81	47		83	48		83	48				
Electrical	69	39		64	42		64	42				
Mechanical	76	40		74	44		74	44				
Systems	-	48		-	49		-	49				
TOTAL	280	213		279	227		279	227				
4A												
Chemical	37		54	39		54	39		54			
Civil	44		73	43		73	43		73			
Electrical	38		60	34		60	34		60			
Mechanical	45		74	39		74	39		74			
Systems	38		-	47		-	47		-			
TOTAL	202		261	202		261	202		261			
4B												
Chemical		81			92			92				
Civil		113			115			115				
Electrical		88			93			93				
Mechanical		116			112			112				
Systems		37			47			47				
TOTAL		435			459			459				
GRAND TOTALS	1,764	1,602	1,158	1,764	1,640	1,158	1,764	1,640	1,158			
Total Student Terms		4,524			4,562			4,562				
Full Time Equivalent		2,262			2,281			2,281				
Make-up and Qualifying		17			18			19				
1st Year of 2-Yr. Masters		9			10			10				
		26			28			29				
Part Time Univ. Undergrad. FTE		1			1			1				

DIVISION OF ENVIRONMENTAL STUDIES

Enrolment Projections to 1975-76

(Regular Course)

YEAR	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
I						
Man-Environment Planning	45	60	80	80	80	80
Geography	85	68	60	60	60	60
	115	125	130	135	140	140
TOTAL	245	253	270	275	280	280
II						
Man-Environment Planning	25	36	48	64	64	64
Geography	65	68	65	48	48	48
	75	95	103	107	111	116
TOTAL	165	199	216	219	223	228
III						
Man-Environment Planning	-	22	33	44	58	58
Geography	72	62	65	62	45	45
	48	62	84	91	95	97
TOTAL	120	146	182	197	198	200
IV						
Man-Environment Planning	-	-	20	30	40	53
Geography	26	68	58	62	59	42
	13	20	25	34	34	34
TOTAL	39	88	103	126	133	129
TOTALS	569	686	771	817	834	837
Make-up & Qualifying						
Man-Environment Planning	-	-	-	-	-	-
Geography	6	6	6	6	6	6
	10	14	18	22	24	24
TOTAL	16	20	24	28	30	30

ARCHITECTURE

PROFESSIONAL

ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

	1971-72			1972-73			1973-74			1974-75			1975-76		
	F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
Term I	18			30			33			33			33		
Term II		17			32			32			32			32	
Term III				16			31			31			31		
Term IV					15			30			30			30	
TOTAL	18	17	-	46	47	-	64	62	-	64	62	-	64	62	-
Total Student Terms	35			93			126			126			126		
Full Time Equivalent	17			47			63			63			63		

ARCHITECTURE
PRE-PROFESSIONAL

ENROLMENT PROJECTION TO 1975-76
(CO-OPERATIVE COURSE)

1972-73

1971-72

1970-71

	F	W	S	F	W	S	F	W	S
I A	60			60			60		
I B			60			60			60
II A		51			51			51	
II B	43			43			43		
III A			39			39			39
III B		22			39			39	
TOTAL	103	73	99	103	90	99	103	90	99
Total Student Terms	275								
Full Time Equivalent	137								
	292								
	146								

1975-76

1974-75

1973-74

	F	W	S	F	W	S	F	W	S
I A	60			60			60		
I B			60			60			60
II A		51			51			51	
II B	43			43			43		
III A			39			39			39
III B		39			39			39	
TOTAL	103	90	99	103	90	99	103	90	99
Total Student Terms	292								
Full Time Equivalent	146								
	292								
	146								

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MATHEMATICS

ENROLMENT PROJECTION TO 1975-76

(REGULAR COURSE)

YEAR	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
I	455	463	483	503	512	521
II	323	341	347	362	377	384
III	280	275	290	295	308	320
IV	94	112	110	116	118	123
TOTAL	1,152	1,191	1,230	1,276	1,315	1,348
Make-up & Qualifying	39	43	51	59	66	72
First Year of 2 Year Masters	4	4	4	6	6	7
TOTAL	43	47	55	65	72	79
Part Time Undergraduate FTE	62	62	62	62	62	62

MATHEMATICS

ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

	1970-71			1971-72			1972-73		
	F	W	S	F	W	S	F	W	S
IA	300			312			326		
B		198	115		205	120		213	125
IIA	142	106		146	88		152	92	
	35	27		39	22		38	22	
	177	133		185	110		190	114	
IIB	76		133	100		137	83		143
	8		32	25		30	20		35
	84		165	125		167	103		178
IIIA	123		61		106	80		110	66
	11		6		25	20		23	16
	134		67		131	100		133	82
IIIB	83	31		119	59		103	78	
	34	11		11	6		25	20	
	117	42		130	65		128	98	
IVA	30		83	31		119	59		103
IVB		65			114			178	
TOTALS	708	572	430	783	625	506	806	736	488
									155
									Q2
Total Student Terms	1710			1914				2030	
Full Time Equivalent	855			957				1015	

MATHEMATICS

ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

	1973-74		1974-75		1975-76	
	F	W	S	F	S	W
IA	340	221	130	346	352	228
B						136
IIA	157	95		162	164	101
General	39	23		40	40	25
TOTAL	196	118		202	204	126
IIB	86		148	89	92	154
General	20		35	21	22	36
TOTAL	106		183	110	114	190
IIIA		114	69			122
General		27	16			28
TOTAL		141	85			150
IIIB	107	64		111	114	69
General	23	16		27	27	16
TOTAL	130	80		138	141	85
IVA	78		107	64	67	114
IVB		181				178
TOTALS	850	741	505	860	878	531
Total Student Terms	2096		2124			2176
Full Time Equivalent	1048		1062			1088

SCHOOL OF PHYSICAL EDUCATION AND RECREATION

ENROLMENT PROJECTION TO 1975-76

(Regular Course)

YEAR	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
I						
Kinesiology	50	65	80	100	100	100
Recreation	20	30	35	40	40	40
TOTAL	70	95	115	140	140	140
II						
Kinesiology	45	45	55	65	85	85
Recreation	24	20	25	30	35	35
TOTAL	69	65	80	95	120	120
III						
Kinesiology	-	37	37	45	52	65
Recreation	-	18	16	20	25	29
TOTAL	-	55	53	65	77	94
IV						
Kinesiology	-	-	35	35	42	50
Recreation	-	-	16	14	18	23
TOTAL	-	-	51	49	60	73
GRAND TOTAL	139	215	299	349	397	427

ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

KINESIOLOGY	1970-71		1971-72		1972-73	
	F	W	F	W	F	W
I A	130	125	120	115	110	105
I B						
II A	95		110		100	
II B						90
III A		82		78		85
III B	47		79		75	
IV A						76
IV B		27	45	45		47
TOTAL	272	234	309	238	285	237
Total Student Terms		636		689		688
Full Time Equivalent		318		345		344

KINESIOLOGY	1973-74		1974-75		1975-76	
	F	W	F	W	F	W
I A	100	92	100	92	100	92
I B						
II A	90		80		80	
II B						70
III A		80		73		64
III B	82		78		72	
IV A						
IV B		75		75		80
TOTAL	272	247	258	240	252	236
Total Student Terms		674		648		634
Full Time Equivalent		337		324		317

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ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

RECREATION	1970-71				1971-72				1972-73			
	F	W	S	F	W	S	F	W	F	W	S	S
I A	58			50					45			
B		55			47					42		
II A	53			50					42			
B			51								40	
III A		40			48					44		
B				40					47			
IV A												47
B						40				40		
TOTAL	111	95	51	140	95	87	134	126				87
Total Student Terms		257			322			347				
Full Time Equivalent		129			161			174				
Grand Total Student Terms - Kin. & Rec.		893			1011			1035				
Grand Total Full Time Equivalent - Kin. & Rec.		447			506			518				

RECREATION	1973-74				1974-75				1975-76			
	F	W	S	F	W	S	F	W	F	W	S	S
I A	40			40					40			
B		37			37					37		
II A	40			35					35			
B			38								33	
III A		38										
B	42			37					34			
IV A												35
B		47	45		45					40		
TOTAL	122	122	83	112	118	73	109	108				68
Total Student Terms		327			303			285				
Full Time Equivalent		164			152			143				
Grand Total Student Terms - Kin. & Rec.		1001			951			919				
Grand Total Full Time Equivalent - Kin. & Rec.		501			476			460				

SCIENCEENROLMENT PROJECTION TO 1975-76

(REGULAR COURSES)

YEAR	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
I	360	360	360	360	370	370
II	264	290	290	290	290	300
III	190	240	240	240	240	240
IV	88	100	120	120	120	120
TOTAL	902	990	1010	1010	1020	1030
Make-up & Qualifying Year I of 2-Year Masters	11 8 19	12 8 20	13 8 21	14 9 23	15 9 24	16 10 26
Part Time F. T. E.	53	55	57	59	61	63

OPTOMETRY

YEAR	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
I	45	50	55	60	60	60
II	65	65	65	65	65	65
III	50	55	55	55	55	55
IV	26	45	50	50	50	50
V		25	45	50	50	50
TOTAL	186	240	270	280	280	280
Year I of 2-Year Masters	-	-	5	10	10	10

APPLIED CHEMISTRY

ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

	1970-71			1971-72			1972-73		
	F	W	S	F	W	S	F	W	S
I A	90			100			100		
I B		55	45		55	50		55	50
II A	37	24		39	32		40	30	
II B	26		28	18		29	24		30
III A		14	22		23	15		24	20
III B	10	12		13	20		21	14	
IV A	10		10	12		13	20		21
IV B		20			22			33	
TOTAL	173	125	105	182	152	107	205	156	121
Total Student Terms	403			441			482		
Full Time Equivalent	202			221			241		

	1973-74			1974-75			1975-76		
	F	W	S	F	W	S	F	W	S
I A	100			100			100		
I B		55	50		55	50		55	50
II A	40	30		40	30		40	30	
II B	25		30	25		30	25		30
III A		25	20		25	20		25	20
III B	20	18		20	18		20	18	
IV A	15		20	15		20	15		20
IV B		35			35			35	
TOTAL	200	163	120	200	163	120	200	163	120
Total Student Terms	483			483			483		
Full Time Equivalent	242			242			242		

APPLIED PHYSICS

ENROLMENT PROJECTION TO 1975-76

(CO-OPERATIVE COURSE)

	1970-71			1971-72			1972-73		
	F	W	S	F	W	S	F	W	S
I A	42			44			46		
I B		23	19		24	20		24	22
II A	14	13		16	13		17	14	
II B	21		11	10		12	10		13
III A			24			18			19
III B	5	4			16			16	
IV A	7		5	4			16		
IV B		7			9			16	
TOTAL	89	47	59	74	62	50	89	70	54
Total Student Terms		195			186			213	
Full Time Equivalent		98			93			107	

	1973-74			1974-75			1975-76		
	F	W	S	F	W	S	F	W	S
I A	48			49			50		
I B		26	22		26	23		27	23
II A	17	16		18	16		18	16	
II B	11		13	12		14	12		14
III A			20			22			22
III B		17			18			20	
IV A	16			17			18		
IV B		16			17			18	
TOTAL	92	75	55	96	77	59	98	81	59
Total Student Terms		222			232			238	
Full Time Equivalent		111			116			119	

INTEGRATED STUDIES

ENROLMENT PROJECTION TO 1975-76

1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
75	75	75	75	75	75

INTEGRATED STUDIES

UNIVERSITY OF WATERLOO

GRADUATE ENROLMENT PROJECTION TO 1975-76

(Including Church Colleges)
(Excluding New Programmes)

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
Arts	364					
Engineering	434	406	446	491	520	538
Division of Environmental		423	393	377	377	377
Studies	67	74	82	88	91	92
Mathematics	258	258	284	300	316	332
Science	237	232	244	255	269	277
TOTAL	1,360	1,393	1,449	1,511	1,573	1,616

GRADUATE STUDENTS
ON CAMPUS BY TERMS
ENROLMENT PROJECTION TO 1975-76

	Full-Time 1970-71		FTE Part- Time	Full-Time 1971-72		FTE Part- Time	Full-Time 1972-73		FTE Part- Time	Full-Time 1973-74		FTE Part- Time	Full-Time 1974-75		FTE Part- Time	Full-Time 1975-76		FTE Part- Time
	F & W	S		F & W	S		F & W	S		F & W	S		F & W	S		F & W	S	
Arts	364	303	14	406	334	20	446	367	23	491	404	25	520	429	28	538	449	30
	434	345	22	413	330	22	393	314	20	377	301	20	377	301	20	377	301	20
Engineering																		
Environmental Studies	67	55	3	74	61	2	82	68	3	88	71	3	91	74	3	92	75	3
Mathematics	258	114	4	268	93	4	284	111	6	300	130	6	316	143	7	332	158	8
Science	237	202	5	232	192	5	244	202	6	255	211	6	269	223	6	277	229	7
TOTAL	1360	1019	48	1393	1010	53	1449	1062	58	1511	1117	60	1573	1170	64	1616	1212	68

GRADUATE STUDENTS ON CAMPUS - BY TERMS
(Enrolment Projections to 1975-76)

Page 26

	1970-71		1971-72		1972-73		1973-74		1974-75		1975-76	
	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring
<u>ARTS FULL-TIME</u> <u>Humanities & Social Sciences</u> Masters M. Phil Year 1 of 3 Yr. Ph.D. Ph.D.	139	90	153	103	167	113	181	121	193	131	197	140
	19	15	21	16	23	17	24	18	25	19	26	20
	82	73	84	76	87	78	92	83	95	86	97	87
	240	178	258	195	277	208	297	222	313	236	320	247
<u>FTE of Part-time (x.3)</u> Masters, M. Phil. & 1st. Yr. of 3 Yr. Ph.D. Ph.D.	9	6	11	7	11	8	12	8	13	9	14	9
	4	3	5	4	5	5	5	5	6	5	6	5
<u>TOTAL Humanities & Social Sciences</u> <u>Psychology</u> Masters Yr. 1 of 3 Yr. Ph.D. Ph.D.	253	187	274	206	293	221	314	235	332	250	340	261
	25	23	35	32	41	38	50	45	53	47	57	50
	27	27	30	30	33	33	37	37	40	40	42	42
	72	65	83	77	95	88	107	100	114	106	119	110
<u>SUB-TOTAL FULL-TIME</u> <u>FTE of Part-time (x.3)</u> Masters Ph.D.	124	115	148	139	169	159	194	182	207	193	218	202
	2	-	2	1	2	2	3	2	3	2	3	2
	4	3	5	4	6	5	8	5	9	6	10	7
<u>TOTAL Psychology</u> <u>TOTAL ARTS</u> <u>TOTAL Student Terms</u>	130	118	155	144	177	166	205	189	219	201	231	211
	383	305	429	350	470	387	519	424	551	451	571	472
	1,021		1,146		1,259		1,386		1,469		1,525	
FTE Students (full time only)		344	382	419	462	489	508					

GRADUATE STUDENTS ON CAMPUS - BY TERMS
(Enrolment Projections to 1975-76)

Page 27

	1970-71		1971-72		1972-73		1973-74		1974-75		1975-76	
	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring
<u>ENVIRONMENTAL STUDIES Full-time</u> (Geography & Planning)												
Masters Ph.D.	55 12	44 11	60 14	48 13	67 15	54 14	72 16	57 14	72 19	57 17	72 20	57 18
SUB-TOTAL FULL-TIME	67	55	74	61	82	68	88	71	91	74	92	75
FTE of Part-time (x.3)												
Masters Ph.D.	2 1	2	3 1		4 1		4 1		4 1		4 1	
TOTAL Environmental Studies	70	57	78	61	87	68	93	71	96	74	97	75
TOTAL Student Terms	189		209		232		247		256		259	
FTE Students (full time only)	63		70		77		82		85		86	
<u>SCIENCE Full-time</u>												
Masters	140	115	126	101	133	106	138	110	147	118	155	124
1st. Yr. of 3 Yr. Ph.D.			6	6	7	7	7	7	7	7	8	8
Ph.D.	97	87	100	85	104	89	110	94	115	98	114	97
SUB-TOTAL FULL-TIME	237	202	232	192	244	202	255	211	269	223	277	229
FTE of Part-time (x.3)												
Masters Ph.D.	2 4	2 3	2 4	2 3	2 4	2 3	2 4	2 3	2 5	2 3	2 5	2 3
TOTAL Science	243	207	238	197	250	207	261	216	276	228	284	234
TOTAL Student Terms	676		656		690		721		761		783	
FTE Students (full time only)	225		219		230		240		254		261	
<u>ENGINEERING Full-time</u>												
Masters	230	161	215	151	202	141	192	134	192	134	192	134
Yr. 1 of 3 Yr. Ph.D.	4	4	6	6	7	7	7	7	7	7	7	7
Ph.D.	200	180	192	173	184	166	178	160	178	160	178	160
SUB-TOTAL Engineering	434	345	423	330	393	313	377	301	377	301	377	301

FTE students equals sum of Full-time student terms + 3 for each year.

GRADUATE STUDENTS ON CAMPUS - BY TERMS
(Enrolment Projections to 1975-76)

	1970-71		1971-72		1972-73		1973-74		1974-75		1975-76	
	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring	Fall & Winter	Spring
FTE of Part-time (x.3)												
Masters Ph.D.	18 6	14 5	18 6	14 5	17 5	12 4	17 5	12 4	17 5	12 4	17 5	12 4
TOTAL Engineering	458	364	447	349	415	329	399	317	399	317	399	317
TOTAL Student Terms	1,213		1,176		1,099		1,055		1,055		1,055	
FTE Students (Full time only)	404		392		366		352		352		352	
MATHEMATICS FULL-TIME												
Masters Year 1 of 3 Yr. Ph.D. M. Phil Ph.D.	115 8 15 120	25 6 8 75	120 10 17 121	27 7 4 55	130 12 20 122	32 8 5 66	140 13 21 126	37 9 7 77	147 15 22 132	42 10 7 84	154 17 23 138	45 12 8 93
SUB-TOTAL FULL-TIME	258	114	258	93	284	111	300	130	316	143	332	158
FTE of Part-time (x.3)												
Masters Ph.D.	3 2	2 1	4 2		5 3		5 4		7 4		7 5	
SUB-TOTAL FTE of P/T	5	3	6		8		9		11		12	
TOTAL MATHEMATICS	263	117	264	93	292	111	309	130	327	143	344	158
TOTAL Student Terms	630		609		695		730		775		822	
FTE Students (Full time only)	210		203		232		243		258		274	

FTE students equals sum of Full-time student terms ÷ 3 for each year.

APPENDIX H

Capital Requirements to 1975-76

CUA Forms M and N

INSTITUTION: UNIVERSITY OF WATERLOO

FORM CUA-70-N

WEIGHTED ENROLMENT FOR PURPOSES OF THEINTERIM CAPITAL FORMULAS U M M A R Y

Weighting Categories: Capital Weighting Scheme						
	A 1.0	B 1.5	C 2.0	D 3.0	E 4.0	TOTAL WEIGHTED ENROLMENT
1970-71	4,412.0	6,118.5	404.0	1,443.0	1,524.0	13,901.5
1971-72	4,810.0	6,759.0	410.0	1,434.0	1,556.0	14,969.0
1972-73	4,911.0	7,081.5	418.0	1,470.0	1,592.0	15,472.5
1973-74	4,948.0	7,405.5	436.0	1,509.0	1,644.0	15,942.5
1974-75	5,029.0	7,500.0	454.0	1,554.0	1,704.0	16,241.0
1975-76	5,051.0	7,642.5	470.0	1,599.0	1,724.0	16,486.5
	NASF @ 96/WE	Spring Co- op Student Nos.	NASF re. Spring @ 12	Fall, Part- time, FTE No.'s	NASF Re. Part-time @ 24	Total NASF
1970-71	1,334,544	1,953	23,436	184	4,416	1,362,396
1971-72	1,437,024	2,117	25,404	208	4,992	1,467,420
1972-73	1,485,360	2,135	25,620	224	5,376	1,516,356
1973-74	1,530,480	2,175	26,100	244	5,856	1,562,436
1974-75	1,559,136	2,178	26,136	263	6,312	1,591,584
1975-76	1,582,704	2,181	26,172	281	6,744	1,615,620

PROBABLE CUMULATIVE 5 YEAR CASH FLOW FOR FORMULA CAPITAL PROJECTS WITH FINAL APPROVALS

CUA/70/M-1

(SUBSEQUENT TO APRIL 1 - 1969 AND BY MARCH 31 - 1971)

Waterloo
University

Project No.	Project Name	In \$ 000's		Cash Flow of Financial Assistance in \$ 000's							REMARKS
		Approved Total Expenditure	Total Financial Assistance	1969 - 70	1970 - 71	1971 - 72	1972 - 73	1973 - 74	1974 - 75		
Wa-59	Dana Porter Arts Library, III	1,169	1,111	758	353						
Wa-35	Engineering IV, Phase I	6,994	6,994	460	2,651	3,003	880				
Wa-58	Chemistry II, Phase I	3,811	3,811	195	1,515	1,601	500				
Wa-70	Additions to the Central Services Complex 1970	864	864	-	430	434	-				UACP-8 expected before March 31, 1971
Wa-66	Psychology	5,360	5,360	-	289	2,180	2,303	588			UACP-8 expected before March 31, 1971
Wa-	Administrative and Academic Services	3,600	3,600	-	212	1,469	1,469	450			UACP-8 expected before March 31, 1971
		21,798	21,740	1,413	5,450	8,687	5,152	1,038			

PROBABLE YEARLY 5 YEAR CASH FLOW FOR "FORMULA" CAPITAL PROJECTS WITH FINAL APPROVALS

(PRIOR TO MARCH 31 - 1969)

Waterloo
University

Project No.	(list only those projects requiring additional funds) Project Name	In \$ 000's			Balance of Financial Assistance in \$ 000's					REMARKS
		Approved Total Expenditure	Total Financial Assistance	Probable Financial Assistance to March 31/71	1971 - 72	1972 - 73	1973 - 74	1974 - 75	Subsequent	

PROBABLE YEARLY 5 YEAR CASH FLOW FOR "NON-FORMULA" CAPITAL PROJECTS WITH FINAL APPROVALS

CUA/70/M-3

(AS OF MARCH 31 - 1971)

Waterloo
University

Project No.	(list only those projects requiring additional funds) Project Name	In \$ 000's			Balance of Financial Assistance In \$ 000's					REMARKS (list formula project which correlates)
		Approved Total Expenditure	Total Financial Assistance	Probable Financial Assistance to March 31/71	1971 - 72	1972 - 73	1973 - 74	1974 - 75	Subsequent	
Wa-51	Married Student Housing	575	575	405	170					All building projects
Wa-	Utilities - 1970	185	185	164	21					Central Services
Wa-	Central Services - alterations 1971	63	63	4	59					Wa-35, Engineering IV
Wa-65	Pedestrian Overpass to Lot A	167	167	125	42					Wa-35, Engineering IV
Wa-64	Engineering Alterations- 1971-72	327	327	-	327					Wa-58, Chemistry II
Wa-	Chemistry Alterations-- 1971-72	200	200	-	80	120				
		1,517	1,517	698	699	120				

PROBABLE YEARLY 5 YEAR CASH FLOW FOR ADDITIONAL "NON-FORMULA" CAPITAL PROJECTS

CUA/70/M-5

Waterloo

University

Project No.	Project Name	Approval Status	In \$ 000's			Balance of Financial Assistance In \$ 000's					REMARKS (list formula project which correlates)
			Approved Total Expenditure	Total Financial Assistance	Probable Financial Assistance to March 31/71	1971-72	1972-73	1973-74	1974-75	Subsequent	
Wa-	Site Services 1971		228	228	-	182	46				All building projects.
Wa-	Utilities 1971		905	905	-	770	135				All building projects.
Wa-	Utilities 1972		360	360	-	-	360				All Building projects.
Wa-	Site Services 1972		175	175	-	-	140	35			All building projects.
Wa-	Library floors 1,5,6,7,8 alterations 1972-73		190	190	-	-	140	50			Admin. Bldg.
Wa-	Arts III alterations 1972-73		26	26	-	-	26	-			Psychology bldg.
Wa-	Mathematics & Computer bldg alterations, 4 & 6, 1972-73		179	179	-	-	135	44			Admin. Bldgs.
Wa-	Engineering Alterations 1973-74		81	81	-	-	-	81			Wa-35, Engineering IV
Wa-	Utilities 1973		140	140	-	-	-	140			All building projects
Wa-	Site Services 1973		100	100	-	-	-	100			All building projects
			2,384	2,384	-	952	982	450			175

APPENDIX I

New Programme Information

NEW PROGRAM INFORMATION

(To Accompany UA4-Page 4 for Each New Program)

UNIVERSITY University of Waterloo

TITLE OF NEW PROGRAM M.Sc. Program in Physiological Optics

OUTLINE OF NEW PROGRAM

Students who elect to pursue a program in Physiological Optics are usually graduates of Optometry Schools who have decided on careers in teaching or research rather than careers in the clinical practice of optometry. However, the program is designed in such a way that students from other disciplines who are interested in vision and vision research may be admitted to work toward a degree in Physiological Optics, or may take courses in the program to satisfy requirements in other fields of study. Examples of some of these might include Physics students who are concerned with the problems of optics and lens design, Biology students who are concerned with various aspects of vision in the animal kingdom, Engineering students who may have an interest in visual problems in highway design or in industry, or students in Psychology whose primary area of interest is visual perception.

Courses in the program will deal broadly with all functional aspects of vision. This might involve problems related to Ocular Mobility, Optical Characteristics of the Eye, Vegetative Physiology of the Visual System, Photo Chemistry of Vision, Visual Perception of Space, The Function of Accommodation and/or Convergence, Color Vision, Radiometry and Colorimetry, and related topics. For appropriate students other areas of interest will include clinical research genetic studies of visual anomalies, and problems associated with children, or senior citizens.

It is expected that in the future the program will be extended in order to offer a Ph.D. program in Physiological Optics. In the interim, arrangements have been made whereby graduates of the Masters Program may continue their studies towards the Doctorate in Graduate Schools in the United States. It is anticipated that this will only be a temporary measure.

DISTINCTIVE FEATURES OF NEW PROGRAM

There are ten graduate schools in Physiological Optics in the world. The faculty at the University of Waterloo, is developing to the point where it is recognized as one of the better faculties. While the facilities presently available are adequate, future plans should improve them considerably in the near future. The library holdings in the area of visual science and related discipline are of an extremely high order.

Reporting Officer Edward Fisher

Date August 27, 1970



NEW PROGRAM INFORMATION

(TO ACCOMPANY UA4 - PAGE 4 FOR EACH NEW PROGRAM)

UNIVERSITY of Waterloo

TITLE OF NEW PROGRAM M.P.E.R. in Kinesiology

OUTLINE OF NEW PROGRAM

The M.P.E.R. program in Kinesiology is a natural development of the multi-disciplinary study of human movement at the under-graduate level. This program will permit in-depth study of one disciplinary facet of Kinesiology.

The candidate will take course work and do research in one of the four areas of specialization: bio-mechanics - work physiology, motor learning, sociology of sport and physical activity, health science.

Candidates will be admitted to the program with an Honours Physical Education degree, or from any relevant discipline. Candidates considered deficient in background for a particular area of specialization, but otherwise admissible, will be required to do qualifying work.

Minimum requirements for the degree will be two full year courses and a thesis.

DISTINCTIVE FEATURES OF NEW PROGRAM

The disciplinary, as opposed to professional, nature of the program renders the program distinct from others offered by departments of physical education elsewhere. The opportunity to study in depth, rather than in breadth, is a second distinguishing feature.

The bio-mechanics - work physiology and health sciences are not offered elsewhere in Canada.

SIGNATURE OF REPORTING OFFICER

N. J. Ashton, Professor

DATE September 15, 1970



NEW PROGRAM INFORMATION

(TO ACCOMPANY UA4 - PAGE 4 FOR EACH NEW PROGRAM)

UNIVERSITY OF WATERLOO

TITLE OF NEW PROGRAM INTER-FACULTY PROGRAMME BOARD

OUTLINE OF NEW PROGRAM

The Inter-Faculty Programme Board, a Senate-sponsored body with membership broadly representative of Faculties, Divisions, and Colleges on campus, will introduce three kinds of activities: (1) The Board will sponsor individual interdisciplinary courses which will be open as electives to all properly qualified students within the University. (2) The Board will stand ready to sponsor certain non-specialist ("service") courses that Faculties may require of students in their programmes. Such sponsorship may involve bringing the Faculty seeking the creation of such a course into touch with the appropriate campus agency and then assisting in the establishment and manning of the course. (3) The Board will gradually introduce interdisciplinary and thematic programmes leading to such degrees as Bachelor of Arts and Bachelor of Science, as these degrees are presently defined within the University. Such thematic programmes as "Man and His Culture", "Social Man", or "Man and His Technology" are envisaged at the present time. By September, 1971, several individual courses and, it is hoped, one of the thematic degree programmes will be available under the sponsorship of the Board. Additional thematic degree programmes will be introduced over the following two or three years, at the rate of approximately one per year.

DISTINCTIVE FEATURES OF NEW PROGRAM

(1) A number of individual interdisciplinary courses and courses concerned with crucial problems confronting today's world and approaches to their solutions will be made available to all qualified students in the University. Such courses, which have not been widely available heretofore, will be intended specifically for students who do not plan to enrol in a degree programme in Inter-Faculty Studies. (2) In the past, students who wished to pursue a broadly structured course of studies leading to a degree sometimes found that departmental major or honours requirements forced them instead into a pattern of specialization. The creation of the Inter-Faculty Programme Board is one of the latest and most significant steps the University has taken to provide more flexible undergraduate degree programmes for students interested in general education rather than in specialization in depth. Eventually, it is hoped, there will be available several three-year thematic degree programmes, each of which will provide a nucleus of thematic "major" courses in Inter-Faculty Studies and will allow the student considerable flexibility in his choice of his remaining courses from throughout the University. (3) It is anticipated that a fourth-year honours programme will be available to limited numbers of graduates of the three-year thematic programmes. An individual programme of study resulting in an honours degree and involving course work, several major papers or an honours thesis, and independent study either on or off campus will be arranged for each student admitted. (4) While there will be a limited number of faculty members teaching full time in the programme, the bulk of the teaching will be done by professors based in other Faculties or Colleges who will be offered joint or cross appointments in Inter-Faculty Studies. This arrangement should permit the programme to draw upon the human resources of the whole University in a way that has not hitherto been possible.

W. Cooper

NEW PROGRAM INFORMATION

(SEPARATE FORMS - UAA PAGES 4 AND 5 - MUST BE SUBMITTED FOR EACH NEW PROGRAM)

UNIVERSITY OF WATERLOO

TITLE OF PROGRAM INTER-FACULTY PROGRAMME BOARD

INDICATE NUMBER OF YEARS DURING WHICH EXTRAORDINARY FINANCIAL ASSISTANCE IS EXPECTED Five

(USE CURRENT DOLLARS AND CURRENT BASIC INCOME UNIT VALUE IN ESTIMATING INCOME AND EXPENSE)

	71/2	72/3	73/4	74/5	75/6
INITIAL EXPENSES	FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR	FIFTH YEAR
ESTIMATED ENROLMENT AND STAFF					
GRADUATE ENROLMENT	-	-	-	-	-
UNDERGRADUATE ENROLMENT	37	74	114	157	180
WEIGHTED ENROLMENT	37	74	118	165	190
STAFF FOR NEW PROGRAM	3	5	6	9	10

ESTIMATED OPERATING EXPENSE

1970-71

	\$	\$	\$	\$	\$
ACADEMIC SALARIES	39,525	60,600	94,000	110,700	160,800
ACADEMIC OTHER EXPENSES (INCLUDING FRINGE BENEFITS)	16,876	26,993	33,257	39,701	43,385
OTHER OPERATING EXPENSES (INCLUDING FRINGE BENEFITS)	30,370	47,165	68,523	80,985	109,946
TOTAL ESTIMATED EXPENSE	\$ 86,771	\$ 134,758	\$ 195,780	\$ 231,386	\$ 314,131

ESTIMATED OPERATING INCOME

	\$	\$	\$	\$	\$
ACADEMIC FEES		18,870	37,740	58,140	80,070
GRANT GENERATED BY FORMULA		46,250	92,500	147,500	206,250
OTHER OPERATING INCOME		-	-	-	-
TOTAL ESTIMATED INCOME	\$	\$ 65,120	\$ 130,240	\$ 205,640	\$ 286,320

EXCESS OF EXPENSE OVER INCOME

	\$	\$	\$	\$	\$
	86,771	69,638	65,540	25,746	27,811
					11,822

ESTIMATED CAPITAL COST INVOLVED

	\$	\$	\$	\$	\$
LAND AND BUILDING					
FURNISHINGS AND FIXTURES					
EQUIPMENT					
OTHER					
TOTAL ESTIMATED CAPITAL COST	\$	\$	\$	\$	\$

DATE August 26th, 1970.

SIGNATURE OF REPORTING OFFICER

W. W. W. W.

NEW PROGRAM INFORMATION

(TO ACCOMPANY UA4 - PAGE 4 FOR EACH NEW PROGRAM)

UNIVERSITY of Waterloo

TITLE OF NEW PROGRAM Ph. D. in French

OUTLINE OF NEW PROGRAM

A Ph. D. programme in French is a goal which this department should reach within the next five years. A minimum of four full courses beyond the M. A. would be required of each candidate. Upon completion of this course work comprehensive examinations on the body of French literature would be required. A candidate would have to satisfy the department as to his capacity to read, writer and speak French fluently. A student who, in the estimation of the department, failed to meet this requirement would be expected to spend a minimum of one academic year in a French milieu in order to improve his ability with the language.

The thesis, following the comprehensive examinations, would be expected to produce an original contribution to the field.

A minimum of three academic years would be required to complete the programme.

NOTE: Page 4, Form UA4, has not been completed, since an estimate of these figures can be rationally made only after further consultation and discussions. It is the intention of the department to proceed with these forthwith.

DISTINCTIVE FEATURES OF NEW PROGRAM

It is felt by this department that a joint effort on the part of the University of Waterloo and some of the neighbouring universities might be advantageous. Not only could it increase resources available to the student both in library and faculty, but it could also hasten the date of introduction of a programme in French at this level. With the present demand for qualified personnel in this field in Canada, there is certainly room for expansion in the area of French studies

SIGNATURE OF REPORTING OFFICER

D. C. Mackenzie
D. C. Mackenzie

DATE Sept. 1, 1970

APPENDIX J

Report on the Position of Church-Related Colleges

at the University of Waterloo

REPORT ON THE POSITION OF CHURCH-RELATED COLLEGES
AT THE UNIVERSITY OF WATERLOO

At the University of Waterloo there are four church-related Colleges: The University of St. Jerome's College, which is in a federated relationship with the University of Waterloo; Tenison College, St. Paul's United College and Conrad Grebel College, each of which is in an affiliated relationship with the University of Waterloo.

The University and its federated and affiliated Colleges have been able to develop and maintain satisfactory relationships in the various academic and financial spheres in which they meet. The University continues to respect the autonomy of the Colleges, and the Colleges have on a number of occasions recorded their appreciation of the sympathetic attention which the University has given to a variety of problems.

The Vice-President (Academic) of the University has encouraged each of the Colleges to consider directing its development in a fashion which will more fully exploit the potential of that College, and will add further to the variety, diversity and interest of the total University community. Each of the Colleges is currently giving close attention to this matter.

A continuing area of concern to the Colleges and the University is that of the support afforded church-related colleges by the Department of University Affairs of the Province of Ontario. Subsequent to the discontinuance of the federal grants through A. U. C. C., the Province has paid operating grants equal to only half of what the grants would have been had the Colleges not been church-related. This policy, however it may be interpreted and justified by D. U. A., puts serious limitations upon the Colleges in the developing and

strengthening of their academic programmes, and in the creation of the strong community life considered by many to be their unique contribution. Further, it means that, on at least some occasions, the continuing presence, much less the growth, of the Colleges' academic programmes is an embarrassment, if not a penalty, suffered by the University as it seeks to develop a comprehensive budget for its entire operation. I would cite the discussion on pp. 139-141 of the report of the Committee on the Relationship Between University & Government, "The University, Society and Government", prepared by Renee Hurtubise and Donald D. Rowat (Ottawa, 1970). Note is made of the brief presented to the Committee by the Board of Directors of A. U. C. C. on behalf of the church-related universities and colleges. That brief declares that, while a substantial number of Canadian colleges and universities retain a church connection,

... none of them is strictly sectarian in the sense of requiring members of the governing board or the president to be from the sponsoring church or giving preference to church members in selecting staff or students, or imposing religious instruction.

'By and large', says the committee (in the brief mentioned above), 'the remaining church-related institutions attempt to serve the Canadian population as a whole, and for all practical purposes they are doing the same work as the universities and colleges which are not church-related.' The committee also stresses the need to encourage diversity and variety among institutions of higher education. Hence it urges full public support of church-related institutions provided that the public interest is adequately represented in their governance and academic policies, and that the principle of public accountability is maintained.

It is the hope of the four church-related Colleges on the University of Waterloo campus that, with the encouragement of the University, a careful

re-consideration of the formula for operating grants will be given by the D. U. A. This will both substantially strengthen the existing commitments and projects of the Colleges, and permit the development of a much fuller participation in academic planning with the University.

